

THE HONORABLE KYMBERLY K. EVANSON

UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WASHINGTON  
AT SEATTLE

SHENZHEN ROOT TECHNOLOGY CO., LTD.,  
HONG KONG LUTE TECHNOLOGY CO.,  
LIMITED, AND SHENZHEN CONGLIN E-  
COMMERCE CO., LTD.,

Plaintiffs,

v.

CHIARO TECHNOLOGY LTD.,

Defendant.

CHIARO TECHNOLOGY LTD.,

Counterclaim Plaintiff,

v.

SHENZHEN ROOT TECHNOLOGY CO., LTD.,  
HONG KONG LUTE TECHNOLOGY CO.,  
LIMITED, SHENZHEN CONGLIN E-  
COMMERCE CO., LTD, SHENZHEN ROOT E-  
COMMERCE CO., LTD., SHENZHEN TPH  
TECHNOLOGY CO., LTD., SHENZHEN  
LUTEJIACHENG NETWORK TECHNOLOGY  
CO., LTD., SHENZHEN JINRUIHANG  
TECHNOLOGY CO., LTD., and SHENZHEN  
XITAO NETWORK TECHNOLOGY CO., LTD.,


Counterclaim Defendants.

Case No. 2:23-cv-631

**ELVIE'S OPPOSITION-IN-PART TO  
MOMCOZY'S MOTION TO  
CONTINUE PRE-TRIAL  
DEADLINES AND STRIKE TRIAL  
DATE**

ELVIE'S OPPOSITION-IN-PART TO MOMCOZY'S MOTION  
TO CONTINUE PRE-TRIAL DEADLINES AND STRIKE TRIAL DATE  
CASE NO. 2:23-CV-00631-KKE

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Defendant/Counterclaim Plaintiff Chiaro Technology Ltd. (“Elvie”) requests the Court deny Plaintiff/Counterclaim Defendant Shenzhen Root Technology Co., Ltd. (aka Shenzhen Lutejiacheng Network Technology Co., Ltd.), Hong Kong Lute Technology Co., Limited, Shenzhen Conglin E-Commerce Co., Ltd, Shenzhen Jinruihang Technology Co., Ltd., and Shenzhen Xitao Network Technology Co., Ltd.’s (collectively, “Momcozy”) Motion to Continue Pre-Trial Deadlines and Strike Trial Date (Dkt. No. 119).

## **I. INTRODUCTION**

There is no good cause to remove dates from the Court’s calendar that the parties have been working toward for almost one year. Since the beginning of the case, Elvie has told Momcozy and the Court that it intended to add additional patents once issued, and when Judge Chun set the schedule in this case on July 5, 2023, he adopted trial and other dates that were further out than *either* party requested.

Moreover, any alleged time crunch regarding its upcoming contentions deadline is of Momcozy’s own making. Since the case schedule was entered almost a year ago, Momcozy has undertaken a global campaign to challenge the validity of Elvie’s patents. In the U.S. alone, Momcozy has filed a reexamination on the asserted ’893 patent and an IPR on the asserted ’380 patent, but apparently has not had time to give due consideration to the first proceeding it filed—this one. In addition, Momcozy has introduced new infringing products every few months—a staggering pace designed to flood the market and stymie Elvie’s patent enforcement efforts.

For its part, Elvie has diligently pursued its patent infringement claims for the better part of two years. Now, strategically timed to coincide with Elvie’s deadline to serve infringement contentions, Momcozy contends the existing schedule is unworkable, refusing to accept any compromise that does not continue the claim construction hearing and trial dates indefinitely.



Momcozy succeeded in having its infringing products re-listed on Amazon by characterizing Judge Chun's order denying Momcozy's TRO as a judicial decision of non-infringement.<sup>1</sup> As a result, Momcozy has no incentive to diligently move this case to trial. It is, however, imperative to Elvie's business that this case be brought to speedy conclusion so that the Amazon de-listing of infringing products can be restored and infringing Momcozy products can either be licensed or removed from the marketplace.

## II. FACTUAL BACKGROUND

Elvie and Momcozy have been litigating these patent claims for more than two years. Elvie is a revolutionary women's healthcare company. After the release of Elvie's landmark product in September 2018—the world's first silent and wearable breast pump—Momcozy began manufacturing, importing, and selling copies at a lower price intended to capitalize on Elvie's success. In June 2022, Elvie sent a cease and desist letter regarding infringing sales of the S9, S12, and M1 Breast Pumps. *See* Dkt. No. 1-2 at 2–3. Momcozy disregarded the letter and continued its infringing sales. *See* Dkt. No. 29 at 170.

As a first response, Elvie sought to remove Momcozy's products from Amazon and on January 30, 2023, received notice that its request to participate in the Amazon Patent Evaluation Express Procedure ("APEX") was accepted. *See* Dkt. No. 29, Ex. 20. As part of this process, Elvie and Momcozy submitted detailed briefing as to whether Momcozy's S12 and S12 Pro devices infringed U.S. Patent No. 11,357,893 (the "'893 patent"). *See* Dkt. No. 20, Ex. 7. Momcozy's brief included detailed claim construction and non-infringement arguments such as whether: (1) "pump" is limited to a "piezo pump"; (2) "in bra" and "wearable" require little to no part of the system

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<sup>1</sup> *See* Elvie's Motion for Reconsideration and Order Denying Motion for Reconsideration, Dkt. Nos. 53 and 59.

1 visible outside the bra; and (3) “recess or cavity” excludes devices where components are not “in  
 2 direct contact” with one another. *Id.*<sup>2</sup> Amazon’s Neutral Patent Evaluator found that Elvie  
 3 established a likelihood of success on the merits and removed Momcozy listings on April 25, 2023.  
 4 *See* Dkt No. 1 at 9.

5 Momcozy responded by filing its Declaratory Judgment Action against Elvie on April 28,  
 6 2023. *See* Dkt. No. 1. Momcozy also filed for a Temporary Restraining Order (“TRO”) seeking to  
 7 restore the S12 and S12 Pro listings on Amazon. *See* Dkt. No. 17. Momcozy’s opening brief,  
 8 supported by a 20-page expert declaration, a client declaration, and hundreds of pages of exhibits,  
 9 set forth non-infringement arguments as to the ’893 patent that built on its arguments during the  
 10 APEX proceeding. *See* Dkt. 17. Notwithstanding that Judge Chun *denied* Momcozy’s TRO,  
 11 Momcozy convinced Amazon to relist the products based on the Court’s preliminary comment  
 12 regarding Momcozy’s infringement position. *See* Dkt. No. 53-1 at 2.

14 After resolving the TRO, the parties submitted a Joint Status Report proposing a schedule  
 15 for the remainder of the case, and Elvie previewed its intent to expand the case beyond the ’893  
 16 patent. *See* Dkt. No. 61 at 1 (“With Elvie’s forthcoming answer and counterclaims . . . Elvie intends  
 17 to allege that Plaintiffs (and other “Momcozy” entities) infringe additional Elvie patents . . .”). The  
 18 Court subsequently set a trial date of September 2, 2025—further out than either party requested—  
 19  
 20

21 <sup>2</sup> Momcozy’s arguments during the APEX proceeding are foundational to its invalidity and  
 22 non-infringement contentions in this litigation. Although there are now four patents, each patent  
 23 relates to the same technology as the ’893 patent and concerns wearable, motorized, and hands-free  
 24 breast pumps for nursing mothers. By way of example, the ’893 patent claims “a diaphragm  
 25 configured to be seated against a diaphragm holder that forms a recess or cavity at least in part with  
 26 an external surface of the housing,” whereas the ’454 patent claims “a diaphragm configured to  
 27 deform based on the negative air pressure generated by the pump to create negative air pressure in  
 the nipple tunnel.” *See* 71:45–50; 23:59–62. All of the patents claim the same function of a pump  
 and diaphragm used to create negative air pressure to stimulate lactation. And they all describe  
 products with similar structures such as a breast shield, breast flange, nipple tunnel, milk container,  
 housing, and outer shell.

1 yet Momcozy continued to seek numerous extensions to its deadlines.<sup>3</sup> *See* Dkt No. 62. Elvie filed  
 2 its Answer and Counterclaims on August 14, 2023, adding counterclaims of infringement and  
 3 validity as to U.S. Patent No. 11,413,380 (the “’380 patent”). *See* Dkt. No. 69. Elvie’s counterclaims  
 4 also indicated that Elvie intended to amend later in the case to assert infringement of Patent  
 5 Application No. 17/203,292 upon its issuance (as the ’381 patent) and to add Momcozy’s new  
 6 products, including the V1. *Id.* at 26. Momcozy answered on October 26, 2023. *See* Dkt. No. 78.

7  
 8 Elvie informed Momcozy again on February 20, 2024, that it intended to amend its  
 9 counterclaims to add U.S. Patent Nos. 11,813,381 (the “’381 patent”) and 11,806,454 (the “’454  
 10 patent”), the latter of which was asserted as to Momcozy’s new V1 and V2 products. *See* Ex. A at  
 11 10–11. Rather than stipulate to Elvie’s procedural request, Momcozy sought a substantial  
 12 enlargement of the case schedule, contending the new patents warranted a 12-month extension of  
 13 the trial date to September 2, 2026. *Id.* at 6. Elvie explained that it was amenable to discussing an  
 14 extension to avoid a dispute but that it was keen on keeping the original trial date based on the  
 15 financial costs of litigation. *Id.* at 7.

16  
 17 Momcozy’s proposal set off weeks of disagreement between the parties. On February 29,  
 18 2024, Elvie proposed an alternative schedule that would have moved up its *own* deadline to serve  
 19 infringement contentions by several months to give Momcozy additional time to prepare for claim  
 20 construction and expert reports. Ex. I at 3–4. Momcozy remained unwilling to compromise (with  
 21 the exception of reducing its request to an 11-month extension) and even used the scheduling dispute  
 22  
 23  
 24

25 <sup>3</sup> *See* Dkt. Nos. 63–64 (order extending deadline to file answer and counterclaims); Dkt. No.  
 26 74 (order extending deadline to respond to counterclaim by 30 days); Dkt. Nos. 76–77 (order  
 27 extending deadline to respond to counterclaim by an additional 21 days); Dkt. Nos. 106–07 (order  
 extending deadline for Momcozy to respond to motion for leave to amend); Ex. A at 2.

1 as a basis to oppose Elvie’s discovery requests.<sup>4</sup> On March 1, 2024, Elvie filed a Motion for Leave  
 2 to Amend and attached its proposed Amended Counterclaims as Ex. 1. *See* Dkt. No. 101. On March  
 3 20, 2024, Momcozy filed its Opposition. *See* Dkt. No. 108. While the parties awaited the Court’s  
 4 ruling, Momcozy proposed that the parties simply strike all deadlines after the claim construction  
 5 briefing. *See* Ex. B at 3. The Court granted Elvie’s Motion on April 30, 2024 (Dkt. No. 113) and  
 6 Elvie filed its Amended Counterclaims on May 1, 2024 (Dkt. No. 114).

7  
 8 Elvie continued to seek a compromise. Even after Momcozy filed its Motion, Elvie proposed  
 9 giving Momcozy four additional weeks to prepare its invalidity and non-infringement contentions,  
 10 while spacing out the claim construction deadlines and maintaining the hearing and trial dates. Ex.  
 11 C at 3. On June 7, 2024, Momcozy *accepted* Elvie’s proposed invalidity and non-infringement dates  
 12 of July 1 and August 2 but refused to compromise on the remainder of the schedule. *Id.* Elvie rejected  
 13 Momcozy’s piecemeal approach and timely served its infringement contentions on June 10, 2024,  
 14 the deadline to do so under the current case schedule.

15  
 16 While complaining for months that it is unable to meet current case deadlines, Momcozy has  
 17 worked in the background to file several actions with the U.S. Patent and Trademark Office (“PTO”)  
 18 designed to invalidate Elvie’s patents. On February 8, 2024, Momcozy filed a Third Party Request  
 19 for Ex Parte Reexamination (“EPR”) against the ’893 patent.<sup>5</sup> *See* Ex. D. This request challenged  
 20 the validity of every claim of the ’893 patent in light of nine prior art references. Part of the EPR  
 21 included a comparison to Momcozy’s own S12 Pro and discussed whether the diaphragm holder  
 22

23  
 24 <sup>4</sup> Later, during the March 22 hearing on the WeChat dispute, the Court explained to  
 25 Momcozy that it would be better to seek expedited relief on the schedule if it cannot meet a deadline.  
 26 *See* Tr. from Mar. 22, 2024 at 26:22–25 (“[F]iling a contested motion would be the easiest way to  
 bring that before the Court. And if there’s some reason that needs to be expedited, you need to let  
 us know in the papers for sure.”).

27  
 28 <sup>5</sup> Although *ex parte* reexaminations are typically confidential, Momcozy admitted to Elvie  
 that it was responsible for filing this request.

1 and diaphragm are entirely enclosed within the milk container. *Id.* at 9. On May 31, 2024, Momcozy  
 2 filed a Petition for *Inter Partes* Review (“IPR”) of the ’380 patent. *See* Ex. E. This request  
 3 challenged the validity of every claim of the ’380 patent in light of four prior art references. *Id.* Part  
 4 of the IPR included a detailed analysis of the technology and suggested claim construction positions  
 5 and grounds for invalidity on a limitation by limitation basis. *Id.* at 22. Momcozy also separately  
 6 challenged certain Elvie utility model patent claims in China related to breast pumps. These actions  
 7 remain pending.

### 8 **III. LEGAL STANDARD**

10 Although a “district court has broad discretion . . . to control its own docket,” it should only  
 11 modify a case schedule on a showing of “good cause.” *Clinton v. Jones*, 520 U.S. 682, 706–07  
 12 (1997); Fed. R. Civ. P. 16(d)(4). The good cause inquiry is focused on the movant’s reasons for  
 13 seeking to modify the scheduling order and primarily considers the movant’s diligence. *In re W.*  
 14 *States Wholesale Nat. Gas Antitrust Litig.*, 715 F.3d 716, 737 (9th Cir. 2013). The key question is  
 15 whether the deadlines “cannot reasonably be met despite the diligence of the party seeking the  
 16 extension.” *Johnson v. Mammoth Recreations, Inc.*, 975 F.2d 604, 609 (9th Cir. 1992). A court  
 17 should consider whether relief from a scheduling order is based on the development of matters that  
 18 could not have been reasonably anticipated at the time the schedule was established. *Zunum Aero,*  
 19 *Inc. v. The Boeing Co., et al.*, C21-0896-JLR, at 4 (W.D. Wash. Dec. 29, 2022). Continuing a trial  
 20 date is a drastic remedy and at least one judge in this district has adopted a policy that they “will not  
 21 consider motions or stipulations to continue the trial date absent exceptional circumstances.” *See,*  
 22 *e.g.*, Chambers Procedures of Judge James L. Robart.

### 25 **IV. ARGUMENT**

26 Good cause does not exist to grant the requested extension, and Momcozy has not exercised

diligence in litigating claims *in a case that it brought*. Momcozy has had ample time to prepare its responsive contentions and only seeks an extension to derail the remainder of the case schedule.

**A. If Momcozy had been diligent, there is no reason the deadlines could not reasonably be met**

**1. Momcozy was aware of the scope of the case at the outset**

Momcozy cannot meet the good cause standard for the extension it seeks. Momcozy was well aware of the scope of the case when it agreed to the current schedule, and there is no reason Momcozy cannot be prepared for the existing *Markman* hearing and trial dates. The parties' Joint Status Report specifically noted that "Elvie intend[ed] to allege that Plaintiffs (and other 'Momcozy' entities) infringe additional Elvie patents by making, using, selling, or offering to sell in the United States or importing into the United States various product lines." Dkt. No. 61 at pp. 1–2; Dkt. No. 69 at 26. Based on that Report, the Court issued a Scheduling Order providing a case schedule that was *longer* than what the parties jointly requested. *Compare* Dkt. No. 62 *with* Dkt. No. 61. The chart below with key exemplary dates shows the significantly extended schedule ordered by the Court:

	<b>Parties' Requested Schedule per June 28, 2023 Joint Status Report</b>	<b>July 5, 2023 Minute Order Setting Trial Dates and Related Dates</b>
Preliminary infringement contentions and disclosure of asserted claims	September 15, 2023	June 10, 2024
Disclosure of preliminary [non-infringement and] invalidity contentions	November 2, 2023	July 1, 2024
Markman hearing	To be set by the Court; preferably May 2024	December 16, 2024
Jury trial	To be set by the Court; Parties expect case to be ready for trial in August 17, 2025	September 2, 2025

Moreover, Courts in this district have denied requests to continue a trial date where the court already granted the parties extensions to discovery. *See, e.g., Zunum Aero, Inc. v. The Boeing*



1 *Company, et al.*, Case No. C21-0896-JLR, D.I. 128 (W.D. Wash. Dec, 29, 2022). Momcozy has  
 2 already obtained extensions to the majority of its deadlines, *supra* p. 6, and is likely to continue to  
 3 ask for more even if the Court continues the trial date.

4 **2. Momcozy has been aware of the additional patents for months**

5 On February 20, 2024, two weeks prior to the deadline for amending pleadings, Elvie  
 6 notified Momcozy that it intended to add the '381 and '454 patents to the case. *See* Ex. A at 10–11.  
 7 On March 1, 2024, a full four months before Momcozy's initial invalidity and non-infringement  
 8 contentions were scheduled to come due, Elvie filed its motion for leave to amend its counterclaims  
 9 along with a copy of its proposed amended counterclaims. *See* Dkt. No. 101. Momcozy contends  
 10 that it is now pressed for time to prepare invalidity and non-infringement positions because it "only  
 11 knew that [the '381 and '454 patents] would be in the case about five weeks ago when this Court  
 12 granted Elvie's motion to amend," implying that it was under no obligation to even consider  
 13 potential defenses until the status of Elvie's counterclaims was formalized. *See* Dkt. 119 at 10. But  
 14 sitting on one's hands until the moment of inevitability and then proclaiming surprise is not  
 15 diligence. Indeed, it is just the opposite and implies, at best, willful blindness under the  
 16 circumstances. Moreover, Momcozy was fully aware that the bar to amend pleadings, particularly  
 17 prior to a scheduled deadline to do so, is low. *Sonoma Cnty. Ass'n of Retired Emps. v. Sonoma Cnty.*,  
 18 708 F.3d 1109, 1117 (9th Cir. 2013).  
 19  
 20

21 True diligence under the circumstances would be supported by a conclusion that despite a  
 22 showing of *conscientious preparation beginning from the earliest moment Momcozy became aware*  
 23 *of the asserted patents* that they still could not reasonably meet the deadlines in the current schedule.  
 24 That is not the case here, and Momcozy admits as much. Momcozy could have and should have  
 25 reasonably anticipated that the Court would grant Elvie's motion and begun preparing for the  
 26  
 27

1 inclusion of the '381 and '454 patents in the case in February when Elvie informed Momcozy that  
2 it intended to amend its counterclaims.

3 Indeed, Momcozy was aware of Elvie's additional patents long before this case was even  
4 filed. Nearly two years ago, on June 22, 2022, Elvie sent Momcozy a cease and desist letter  
5 identifying and alleging infringement not only of the '893 patent but also of the applications that  
6 would ultimately result in the '380 and '381 patents—both of which are asserted in Elvie's  
7 counterclaims. *See* Dkt. No. 1, Ex. 2 at 2–3. And subsequent to that letter but preceding this case,  
8 Elvie and Momcozy were embroiled in an Amazon APEX proceeding during which the parties  
9 litigated the infringement of the '893 patent by Momcozy's S12 and S12 Pro devices. *See* Dkt. No.  
10 29, Ex. 20.

### 12 3. Any “prejudice” to Momcozy is a result of its own obfuscation

13 Elvie's efforts to uncover the identity of relevant Momcozy entities and products has been  
14 stymied at nearly every turn. For example, only after Elvie independently uncovered publicly  
15 available information of Xitao's accused product sales to the U.S. did Momcozy admit on January  
16 19, 2024, that Xitao “is a post-importation distributor through Alibaba.com of the S12 Pro, S12, S9  
17 Pro, S9, M1, and M5 products.” And it was not until April 29, 2024 that Momcozy finally identified  
18 “Root Technology Ltd.” as the owner of the “Momcozy” trademark—along with *eleven* other  
19 related entities operating and *five* other entities no longer operating. Elvie has decided not to seek  
20 to add additional Momcozy entities because of the unusually complex and shifting nature of  
21 Momcozy's corporate structure, but such obfuscation underpins Elvie's significant concerns  
22 regarding its ability to recover damages. *See infra* Section IV.D.

23 Momcozy also launches new breast pumps at a rapid clip and has no qualms about copying  
24 its competitors' designs. Indeed, Momcozy launched a V1 and V2 product in late 2023—a near copy  
25  
26  
27



of the Elvie Stride product. *See* Ex. F. More recently, Momcozy has launched new products nearly identical in appearance to the Elvie Pump: the Mobile Style (M6) and Mobile Flow (M9). *Id.*

<p><b>Elvie Stride</b></p> 	<p><b>Momcozy V1</b></p> 	<p><b>Momcozy V2</b></p> 
<p><b>Elvie Pump</b></p> 	<p><b>Momcozy Mobile Style (M6)</b></p> 	<p><b>Momcozy Mobile Flow (M9)</b></p> 

### **B. Momcozy failed to diligently file this motion**

Momcozy offers no explanation as to why it did not immediately move to extend the schedule as soon as—or even before—the Court granted Elvie’s motion for leave to amend on April 30, 2024 and instructed the parties to file a motion to modify the schedule if needed. Indeed, Elvie

1 told the Court in its March 22, 2024 Reply to Motion for Leave to Amend Counterclaims that  
 2 Momcozy should file a motion to modify the case schedule per the avenue provided by the Local  
 3 Rules. Instead, in an attempt to game the system, Momcozy waited until less than a week before  
 4 Elvie's infringement contentions were due under the current schedule—seeking to ensure that Elvie  
 5 would fail to get any benefit from any extension.

6 **C. Momcozy's proposed relief would depart from historical practice**

7 Momcozy's proposed schedule to strike the trial date or continue it by at least six months  
 8 should be rejected not only for a lack of good cause but also because it marks a drastic departure  
 9 from historical practice in the Western District of Washington. Patent cases in this district generally  
 10 operate on a similar timeline to the existing case schedule. Judge Chun set a time to trial of 858  
 11 days—this is in line with this district's average time to trial of 886 days. *See* Dkt. No. 62; Ex. G.  
 12 Even where cases in this district involve more patents than the four in this litigation, courts have  
 13 continued to operate on this similar timeline. *See NXP USA Inc et al v. Impinj Inc.*, 20-cv-01503  
 14 (W.D. Wash. Oct. 7, 2020) (reached trial within 973 days of transfer despite involving eight patents  
 15 and a 3 month stay for an IPR); *Immersion Corporation v. Valve Corporation*, 23-cv-00712 (W.D.  
 16 Wash. May 15, 2023) (scheduled for trial 25 months after filing despite involving seven patents).  
 17 The existing case schedule is especially reasonable compared to the pace set in other patent heavy  
 18 districts like the Eastern District of Texas (717 days) and District of Delaware (804 days). *See* Ex.  
 19 G. As is typical in patent cases, the parties will work together after claim construction to narrow the  
 20 number of triable claims.  
 21  
 22  
 23

24 There is nothing special about this case that supports departing from historical practice, not  
 25 least because Elvie's four patents are all directed at the same core technology: a wearable breast  
 26 pump system with a housing constructed to fit inside a bra and an air pump system using a flexible  
 27

1 diaphragm to pressurize a nipple tunnel. *See* Abstract, '381 and '454 patents. This was the same  
 2 technology already embodied in and asserted through the '893 and '380 patents and which the  
 3 parties litigated during the APEX proceeding (in which a Neutral Patent Evaluator sided with Elvie)  
 4 and TRO briefing.

5 Momcozy's invalidity and non-infringement contentions are likely to repeat similar  
 6 arguments as those from the APEX proceeding, TRO brief, IPR, and EPR. *See* Dkt. No. 114 at 16–  
 7 18; Dkt. No. 20, Ex. 6 at 3; Ex. D; Ex. E. For example, the positioning of the pump diaphragm is a  
 8 point of continuing disagreement between the parties as Momcozy disputes whether its products  
 9 contain “a diaphragm configured to be seated against a diaphragm holder that forms a recess or  
 10 cavity at least in part with an external surface of the housing.” *See* '893 patent at 71:45–50.

12 **D. Elvie would be prejudiced by the drastic remedy of moving set dates it has been**  
 13 **working towards.**

14 Extending the case schedule prejudices Elvie, because it allows Momcozy to continue  
 15 infringing without guarantee of recompense. With each passing day, Momcozy cuts into Elvie's  
 16 market share and erodes Elvie's reputation by releasing blatantly copied products at a fraction of  
 17 the cost. Momcozy's ever-evolving corporate structure largely shields it from consequences and  
 18 presents legitimate concerns whether Elvie can collect on a damages award should it succeed at trial.  
 19 Momcozy lacks a fixed domestic presence and operates through a web of foreign entities that  
 20 imports its products into the United States. Understanding that Elvie lacks a mechanism to enforce  
 21 any damages award, Momcozy is content with the status quo given Amazon returned its products to  
 22 the marketplace.  
 23

24 In view of these extraordinary circumstances, Elvie proposed Momcozy post a bond for  
 25 attorneys' fees specifically for the duration of any case extension, which presents an additional  
 26 option for compromising on the trial date. Such a measure would offer a small modicum of assurance  
 27

1 to Elvie, which is still a startup that must otherwise redirect research and development funds towards  
2 this litigation.

3 **E. Elvie has made numerous attempts to resolve the schedule dispute**

4 Even after Momcozy filed its motion, Elvie made one last effort to seek a compromise in  
5 order to avoid burdening the Court and the parties with unnecessary motions practice. *See* Ex. C at  
6 3. Elvie's final proposed schedule fairly balanced the needs of the parties. It gave Momcozy an  
7 additional month to prepare its invalidity and non-infringement contentions and kept the Markman  
8 and trial dates intact. In response, Momcozy proposed agreeing only to the first *two* of Elvie's  
9 proposed dates impliedly admitting that whatever alleged burden imposed by Elvie's amended  
10 counterclaims would be alleviated with that extra time. *Id.* What Momcozy would not agree to—  
11 and which belies its true intentions—is any of Elvie's subsequent proposed dates.

13 After failing to reach agreement, Elvie was forced to serve its infringement contentions on  
14 the due date under the current case schedule.

15 **1. Elvie's proposed schedule**

16 As Momcozy notes, an adjustment to certain deadlines is necessary because of the ordering  
17 of claim construction expert reports. But a lengthy extension would be inappropriate given: (1)  
18 Momcozy has been analyzing Elvie's patents since at least as early as June 2022; (2) Momcozy  
19 already submitted briefs on invalidity and non-infringement to Amazon, the Patent Office, and the  
20 Court; (3) Momcozy had notice of Elvie's new patents since at least February 2024; and (4)  
21 Momcozy waited to request this extension until the eve of Elvie's infringement contentions  
22 deadline.  
23

24 The parties can, if necessary, move for further relief with regard to specific due dates. But  
25 striking the claim construction hearing and trial dates is a drastic remedy that is premature given  
26 Momcozy's advanced notice of the upcoming deadlines. Elvie proposes an alternative schedule that  
27

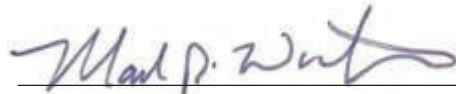
1 would correct the claim construction conflicts and afford Momcozy two additional weeks to prepare  
2 its invalidity and non-infringement contentions. *See* Ex. H.

3 **V. CONCLUSION**

4 For the foregoing reasons, this Court should deny Momcozy's request to extend the schedule  
5 and strike the existing claim construction hearing and trial dates.  
6

7 Date: June 20, 2024

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9  
10 

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## **EXHIBIT A**

**From:** [Josephine Kim](#)  
**To:** [YANG Qianwu](#)  
**Cc:** [Alex Alfano](#); [SHM Momcozy](#); [chen@shm.law](#); [ELVIE-MOMCOZY-DJ](#); [Walters](#); [Jeremy Roller](#)  
**Subject:** RE: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims  
**Date:** Saturday, March 16, 2024 8:12:30 PM  
**Attachments:** [image001.png](#)

---

Wu,

Elvie is amenable to providing Momcozy an extension until Wednesday, March 20 to respond to Elvie's Motion for Leave to Amend Pleadings.

Regards,  
Josephine

---

**Josephine Kim**  
Director  
**Sterne, Kessler, Goldstein & Fox P.L.L.C.**  
**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)  
**Direct:** 202.772.8896

---

**From:** Josephine Kim  
**Sent:** Friday, March 15, 2024 7:37 PM  
**To:** 'YANG Qianwu' <[yang@shm.law](mailto:yang@shm.law)>  
**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM Momcozy <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; chen@shm.law; ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; Walters <[Walters@lowegrahamjones.com](mailto:Walters@lowegrahamjones.com)>; Jeremy Roller <[jroller@aretelaw.com](mailto:jroller@aretelaw.com)>  
**Subject:** RE: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

Wu,

We have explained on multiple occasions that Elvie is not amenable to extending the case schedule. An extension of eleven months is not in line with the average case length in this district and both Momcozy and the Court were aware of the additional patents to be added before the current case schedule was set. Elvie is committed to moving this case forward despite your client's prejudicial attempts at delay.

This is a procedural motion that Elvie submitted well in advance of the deadline for amending the pleadings. We have been candid with you throughout this case that we were planning to amend and we formally requested Momcozy's position on Elvie's motion to amend almost a month ago. That Momcozy wishes to raise a separate issue regarding the case schedule is not a legitimate basis to oppose this filing. We have given you our position on your proposal and invited you to send us your proposed schedule and file a motion, but to date you have not done so.

Finally, as you know, our client is located in the UK and it is late Friday night there, so your demand for an immediate response is unreasonable. We will attempt to raise your request with our client, but we cannot commit to your demand for an answer in less than 24 hours.

You previously requested a Word version of Elvie's amended counterclaims so we attach it here as a courtesy.

Regards,

Josephine

---

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

**Direct:** 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Friday, March 15, 2024 4:20 PM

**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM Momcozy <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law);

ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; Walters <[Walters@lowegrahamjones.com](mailto:Walters@lowegrahamjones.com)>;

Jeremy Roller <[jroller@aretelaw.com](mailto:jroller@aretelaw.com)>

**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

[Adding Jeremy here]

Thank you for your prompt reply. I have outlined our basis for the objection in our previous communications. Without a proper extension of the schedule to accommodate the dramatic enlargement of this case, Elvie's proposed amended counterclaims will substantially prejudice Momcozy.

After further discussion with our client, we plan to request an 11-month extension, which is more than reasonable compared to other similar cases in the jurisdiction of the 9th Circuit.

Since our deadline to oppose your motion is next Monday, it would be greatly appreciated if you could let us know your decision today.

Best regards,

Wu

On 15 Mar 2024, at 22:56, Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)> wrote:

Wu,

We will raise your one-week extension request with our client but we need to understand the basis of your opposition so we can tell them. Based on our prior discussions we understand that your only basis for opposing was that Momcozy wants an extra year added to the schedule. If there was some other basis, then that should have been raised with us before.



Best,  
Josephine

---

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

Email: [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

Direct: 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Friday, March 15, 2024 9:29 AM

**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM Momcozy <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>;

[chen@shm.law](mailto:chen@shm.law); ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; Walters

<[Walters@lowegrahamjones.com](mailto:Walters@lowegrahamjones.com)>

**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Good morning. Because our team has been occupied by multiple depositions in HK or traveling abroad during the past week, could you please give us a 1-week extension to file our objection to your Motion for Leave to Amend Counterclaims?

Best regards,

Wu

On Mar 14, 2024, at 16:29, YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)> wrote:

Hi Josephine,

Sorry for this tardy reply for the reasons I explained to Alex.

Let us first send you our proposed schedule and then decide if we need to meet and confer.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM Law Firm

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Shenzhen, 518052, China

Silicon Valley Office  
美国硅谷办公室

3000 El Camino Real, Building 4, Suite 200, Palo Alto, California 94306

On Mar 9, 2024, at 09:14, Josephine Kim  
<[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)> wrote:

Wu,

We are circling back to our discussion where Momcozy mentioned that it intends to file a motion to modify the case schedule. We are generally available at 8AM ET next week to confer. Please let us know what day works for you and please send along the case schedule that Momcozy intends to propose to the Court.

Thanks,  
Josephine

<image001.png>

**Josephine Kim**  
Director  
**Sterne, Kessler, Goldstein & Fox P.L.L.C.**  
**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)  
**Direct:** 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>  
**Sent:** Sunday, February 25, 2024 11:25 PM  
**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>  
**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM Momcozy <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law); ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; [walters@lowegrahamjones.com](mailto:walters@lowegrahamjones.com)  
**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Regarding the enlargement of the case schedule, we believe it is only reasonable to extend the trial date from the current September 2, 2025, to September 2, 2026 or later to reflect the enlargement of the case accordingly, because Elvie will have added 3 more patents, joined 4 more parties, and added 1 more claim to this case after the schedule was established. Moreover, it may take Elvie more than 6 months to complete the service to TPH under the Hague Service Convention.

Please let us know your position regarding this 12-month extension of the trial date.

If Elvie does not consent to the extension of the schedule as requested by Momcozy, Momcozy intends to file a motion to modify the schedule. We would also like to request a meet and confer to discuss our planned motion.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM LAW FIRM

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337 | T: +86 755 8326 6693

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25F, China Resources Tower (Spring Bamboo)  
2666 Keyuan South Road, Nanshan  
Shenzhen, 518052, China

Silicon Valley Office  
3000 El Camino Real, Building 4, Suite 200, Palo Alto,  
California 94306

On Feb 23, 2024, at 21:40, YANG Qianwu  
<[yang@shm.law](mailto:yang@shm.law)> wrote:

Hi Josephine,

We will respond to your email substantively after  
our client confirms our proposal next Monday.  
Generally, we believe it would be only reasonable to

extend the case schedule by 1 year to reflect the significant enlargement of this case.

We prefer to avoid any unnecessary motions or briefs regarding these procedural matters if feasible.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM Law Firm

M: +86 139 2521 2009 (WhatsApp) | T: +86 755  
8326 6693

25F, China Resources Tower (深圳“春笋”)  
2666 Keyuan South Road, Nanshan  
Shenzhen, 518052, China

3000 El Camino Real, Building 4, Suite 200, (美国  
硅谷) Palo Alto, California 94306

On 23 Feb 2024, at 09:38, Josephine  
Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>  
wrote:

Wu,

As to the enlarged case schedule, please let us know what Momcozy has in mind so we can consider it with our client. As I have mentioned previously, Elvie is not keen to extend out the trial date, especially given that the parties jointly proposed an August 2025 trial date last summer, but we would like to avoid a dispute and briefing on the schedule if possible.

Note, however, that Elvie would like to get its Motion for Leave on file as soon as possible so we'd appreciate it if you could send us the proposed schedule this week so we can see if the parties are on the

same page. To the extent the case schedule discussions cannot be swiftly resolved, Elvie intends to proceed with filing its Motion for Leave to Amend its Counterclaims, even if not stipulated.

Thanks,  
Josephine

<image001.png>

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

**Email:** [joskim@sternekessler.com](mailto:jskim@sternekessler.com)

**Direct:** 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Wednesday, February 21, 2024 10:32 PM

**To:** Josephine Kim

<[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** Alex Alfano

<[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM

Momcozy

<[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law);

ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; [Walters@lowegrahamjones.com](mailto:Walters@lowegrahamjones.com)

**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Could we stipulate according to the following principles:

1. Momcozy agrees to Elvie's amendment of the complaint to include the two asserted patents and the additional party.
2. Both parties agree to a substantively enlarged proposed schedule to accommodate a significant increase (at least fourfold in terms of the number of patents, in addition to the joinder of four

more parties and the inclusion of at least one additional claim) in the scope of the case.

If this is agreeable to your team, we can proceed to flesh out the proposed enlarged schedule as soon as practical.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM Law Firm

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Shenzhen, 518052, China

Silicon Valley Office  
美国硅谷办公室

3000 El Camino Real, Building 4, Suite  
200, Palo Alto, California 94306

On Feb 22, 2024, at 04:14,

Josephine Kim  
<[IOSKIM@sternekessler.com](mailto:IOSKIM@sternekessler.com)>  
wrote:

Hi Wu,

On Elvie's proposal for a stipulated motion for leave to file the amended counterclaims mentioned in Alex's email below, we would appreciate your prompt response in view of the parties' recent discussions that this amendment would be forthcoming and in view of the March deadline to amend pleadings.

Thanks,  
Josephine

<image002.png>

**Josephine Kim**  
Director  
**Sterne, Kessler, Goldstein & Fox P.L.L.C.**  
**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)  
**Direct:** 202.772.8896

---

**From:** Alex Alfano  
<[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>  
**Sent:** Tuesday, February 20, 2024 9:49 PM  
**To:** YANG Qianwu  
<[yang@shm.law](mailto:yang@shm.law)>; SHM Momcozy  
<[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law)  
**Cc:** ELVIE-MOMCOZY-DJ  
<[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; [walters@lowegrahamjones.com](mailto:walters@lowegrahamjones.com)  
**Subject:** Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

Counsel,

Elvie intends to file its Amended Counterclaims asserting U.S. Patent Nos. 11,813,381 and 11,806,454 and naming Shenzhen Xitao Network Co., Ltd. this week. Given that Elvie intends to file its Amended Counterclaims prior to the deadline for amending pleadings (see D.I. 62), please let us know if Plaintiffs would be willing to stipulate to Elvie's leave to file the Amended Counterclaims. Otherwise, please let us know your position on Elvie's Motion for Leave to File Amended Counterclaims.

Best,  
Alex

<image003.png>

**Alex Alfano**

Associate

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

1101 K Street, NW, 10<sup>th</sup> Floor

Washington, DC 20005

<image002.png>

**Email:** [aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)

**Direct:** 202.772.8731

**Main:** 202.371.2600



## **EXHIBIT B**

**From:** [Josephine Kim](#)  
**To:** [YANG Qianwu](#); [Jeremy Roller](#)  
**Cc:** [SHM Momcozy](#); [Alex Alfano](#); [Walters@lowegrahamjones.com](#); [ELVIE-MOMCOZY-DJ](#); [23-631-Momcozy-Elvie](#)  
**Subject:** RE: Proposed modification to the current case schedule  
**Date:** Thursday, April 11, 2024 1:54:46 PM  
**Attachments:** [image001.png](#)

Hi Wu and Jeremy,

Thank you for sending Momcozy's proposed schedule. In the interest of resolving this amicably, below is our counter-proposal. We feel this should be satisfactory because it: (1) increases the time between disclosure of contentions and trial; and (2) follows the spacing between events requested by Momcozy except where mandated by the Local Rules.

We are happy to discuss these changes during our call this evening/morning.

Event	Source	Current Schedule	Momcozy's Proposed Schedule	Elvie's Proposed Schedule
Preliminary Infringement Contentions	Scheduling Order	June 10	August 1	May 13
Preliminary Non-Infringement and Invalidity Contentions	Scheduling Order	July 1	September 5	June 17
Exchange of Proposed Terms and Claim Elements for construction	Local Patent Rule 130 (within 20 days of contentions)	July 22	September 26	July 3
Preliminary Claim Chart Exchange of Preliminary Claim Constructions and Extrinsic Evidence	Scheduling Order; Local Patent Rule 131 (within 30 days of disclosing proposed terms)	Sept. 9	October 25	August 2
Expert Reports on Claim Construction	Scheduling Order	July 29	December 11	Sept 18
Rebuttal Expert Reports on Claim Construction	Scheduling Order	Aug. 23	January 10	Oct 18
Joint Claim Chart and Prehearing Statement	Scheduling Order; Local Patent Rule 132 requires (within 45 days of Preliminary Claim Constructions)	Oct. 3	December 11	Sept 16
Completion of Claim Construction Discovery	Local Patent Rule 133 (within 50 days of Joint Claim Chart and Prehearing Statement)	N/A	February 6	Nov 5
Opening Claim Construction Briefs	Scheduling Order; Local Patent Rule 134 (within 55 days of Joint Claim Chart and Prehearing Statement)	Oct. 28	February 13	Nov 8
Responsive Claim Construction Briefs	Scheduling Order; Local Patent Rule 134 (within 15 days of opening claim construction brief)	Nov. 12	February 28	Nov. 22
Markman Hearing	Scheduling Order	Dec. 16	To be set by the Court	Dec. 16
Expert Reports	Scheduling Order	Feb. 3		Feb. 3
Rebuttal Expert Reports	Scheduling Order	Mar. 3		Mar. 3
Deadline for Discovery Motions	Scheduling Order	Feb. 20		Feb. 20
Close of Discovery	Scheduling Order	Mar. 24		Mar. 24
Dispositive Motions + Motions Challenging Expert Testimony	Scheduling Order	Apr. 30		Apr. 30
Settlement Conference	Scheduling Order	June 2		June 2
Motions in Limine	Scheduling Order	Aug. 4		Aug. 4
Joint Pretrial Order	Scheduling Order	Aug. 15		Aug. 15
Pretrial Conference	Scheduling Order	Aug. 18		Aug. 18
Trial Briefs, Voir Dire	Scheduling Order	Aug 26.		Aug 26.

Questions, and Jury Instructions				
Trial	Scheduling Order	Sept. 2		Sept. 2

Regards,  
Josephine

---

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

Email: [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

Direct: 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Tuesday, April 9, 2024 9:13 AM

**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** SHM Momcozy <[ShmMomcozy@shm.law](mailto:ShmMomcozy@shm.law)>; Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; Jeremy Roller <[jroller@aretelaw.com](mailto:jroller@aretelaw.com)>; Walters@lowegrahamjones.com; ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; 23-631-Momcozy-Elvie <[23-631-momcozy-elvie@shm.law](mailto:23-631-momcozy-elvie@shm.law)>

**Subject:** Re: Proposed modification to the current case schedule

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Good morning.

After taking all factors into consideration, the following are our proposed modifications to the current schedule. We look forward to amicably negotiating a resolution with Elvie.

Events Up To Claim Construction	Current Schedule	Proposed Modification (in blue)
<b>JURY TRIAL DATE</b>	<b>September 2, 2025 at 01:30 pm</b>	To be set by the Court
Length of Trial	10 days	10 days
Preliminary infringement contentions and disclosure of asserted claims	June 10, 2024	August 1, 2024
Disclosure of preliminary non-infringement and invalidity contentions	July 1, 2024	September 5, 2024
Exchange of Proposed Terms and Claim Elements for Construction	n/a	September 26, 2024
<del>Preliminary Claim Chart</del> Exchange of Preliminary Claim Constructions and Extrinsic Evidence	September 9, 2024	October 25, 2024
Joint claim- <del>chart</del> construction and Prehearing Statement	October 3, 2024	December 11, 2024
Opening expert disclosures for claim construction	July 29, 2024	December 11, 2024
Rebuttal expert disclosures for claim construction	August 23, 2024	January 10, 2025
Completion of claim construction discovery		February 6, 2025
Opening claim construction briefs	October 28, 2024	February 13, 2025
Responsive claim construction briefs	November 12, 2024	February 28, 2025
Claim construction hearing	December 16, 2024	To be set by the Court
Claim construction order		When issued by the Court

Best regards,

Wu

## **EXHIBIT C**

**From:** YANG Qianwu  
**To:** Joseph H. Kim  
**Cc:** Jeremy Roller; SHM Momcozy; ELVIE-MOMCOZY-DJ; Mark Walters; 23-631-Momcozy-Elvie  
**Subject:** Re: Case 2:23-cv-00631-KKE Shenzhen Root Technology Co Ltd v. Chiaro Technology Ltd  
**Date:** Sunday, June 9, 2024 12:26:12 AM  
**Attachments:** image002.png  
 image003.png

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Counsel,

Thank you for your reply.

Elvie's proposed schedule is unreasonable and does not comply with the local patent rules. For example, Elvie has not yet identified its asserted patent claims for any of the asserted patents. Requiring Momcozy to serve invalidity contentions for four asserted patents just three weeks after Elvie identifies asserted patent claims and serves infringement contentions is especially unreasonable for the two newly-asserted patents.

Furthermore, Momcozy has been diligently negotiating the schedule changes in accordance with Judge Evanson's order. Given that Elvie's primary reason for refusing to extend the schedule after the drastic enlargement of the case is the concern that Elvie "has no guarantee it can collect on a judgment should it succeed at trial," Momcozy has spent significant time preparing detailed financial data, exceeding what Elvie can obtain under FRCP, and has provided this data to Elvie in a timely manner. The primary purpose of providing this detailed and sensitive data is to demonstrate to Elvie that Momcozy is a fast-growing startup with a robust financial status, making Elvie's concerns unnecessary.

Unfortunately, it seems that the Court will have to resolve the parties' disagreement about scheduling by deciding Momcozy's motion to amend the schedule. To be clear, if Momcozy's motion is granted, Momcozy reserves the ability to supplement its noninfringement and invalidity contentions and any claim construction exchanges or submissions that occur before the court rules on Momcozy's motion.

Best regards,  
 Wu

YANG Qianwu (杨乾武 律师)  
 He/Him/His  
 Admitted in California & China  
 Founding Managing Partner  
 SHM LAW FIRM

On Jun 8, 2024, at 08:14, Joseph H. Kim <JOSEPHK@sternekessler.com> wrote:

Counsel,

Thank you for your email, but there seems to be no reason to do this piecemeal. The primary reason you cite in your motion for needing an extension is to prepare invalidity contentions for patents asserted in Elvie's amended counterclaims. If your client is amenable to moving the dates for infringement and invalidity contentions to July 1 and August 2, respectively, then that resolves your client's main concern and there should be no further impediment to agreeing to the rest of the dates we've offered. Moreover, any benefits from your proposal would appear to flow entirely to Momcozy. We offered our proposed schedule specifically to try and save the parties and the Court from having to expend resources on unnecessary motions practice. Agreeing to the limited extension you propose does not solve that issue. Nor does it take into account the significant resources already expended by Elvie in preparing infringement contentions that were set to come due less than a week after Momcozy filed its motion.

As a result, we cannot agree to your proposal and reiterate ours. Please let us know by no later than 12 pm Pacific time on Monday, June 10, if your client will agree to our proposed schedule. Otherwise, we will proceed to serve our infringement contentions on June 10 as the current schedule requires.

Regards,  
 Joe

**Joseph H. Kim**  
 Associate  
**Sterne, Kessler, Goldstein & Fox P.L.L.C.**  
 Email: [josephk@sternekessler.com](mailto:josephk@sternekessler.com)  
 Direct: 202.772.8718

**Administrative Assistant:** Renee Moore  
 Direct: 202.772.8820 Main: 202.371.2600

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>  
**Sent:** Friday, June 7, 2024 4:44 PM  
**To:** Joseph H. Kim <[JOSEPHK@sternekessler.com](mailto:JOSEPHK@sternekessler.com)>  
**Cc:** Jeremy Roller <[jroller@aretelaw.com](mailto:jroller@aretelaw.com)>; SHM Momcozy DJ <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; Mark Walters <[walters@lowegrahamjones.com](mailto:walters@lowegrahamjones.com)>; 23-631-Momcozy-Elvie <[23-631-momcozy-elvie@shm.law](mailto:23-631-momcozy-elvie@shm.law)>  
**Subject:** Re: Case 2:23-cv-00631-KKE Shenzhen Root Technology Co Ltd v. Chiaro Technology Ltd

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Counsel,

Given that both parties seem inclined to defer the upcoming deadlines for infringement and invalidity contentions, we propose a mutual extension of these

deadlines to July 1 and August 2, 2024, respectively, while Momcozy's motion to amend the schedule is briefed and decided by the Court.

We believe this approach aligns with the Court's guidance on this matter and serves the best interests of the parties, particularly as they intend to engage in a new round of comprehensive settlement negotiations.

Best regards,  
Wu

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On Jun 7, 2024, at 05:13, Joseph H. Kim <[JOSEPHK@sternekessler.com](mailto:JOSEPHK@sternekessler.com)> wrote:

Counsel,

We've reviewed your motion to amend the scheduling order. As we've previously made clear, we cannot agree to the proposed schedule you've submitted to the Court and plan to oppose your motion if the parties cannot otherwise reach an agreement. In an attempt at compromise and so that we do not needlessly take up the parties' and the Court's time and resources on this issue, we offer the following proposed schedule which fairly balances the parties' interests. Elvie's proposed schedule provides Momcozy with sufficient additional time before its non-infringement and invalidity contentions come due and maintains the Markman hearing and trial dates.

Momcozy waited for over a month after Elvie served its amended counterclaims to file its motion to amend the pre-trial schedule. And its motion comes less than a week before Elvie's non-infringement contentions are due. As a result, please let us know by no later than 12 pm Pacific time on Monday, June 10, if Momcozy agrees to our proposal. If an agreement has not been reached by that time, Elvie will plan on serving its infringement contentions on June 10 as required under the current schedule.

Scheduled Events	Current Schedule	Current Momcozy Proposal	Elvie Proposal
Preliminary infringement contentions and disclosure of asserted claims	6/10/2024	8/1/2024	<b>7/1/2024</b>
Disclosure of preliminary non-infringement and invalidity contentions	7/1/2024	9/5/2024	<b>8/2/2024</b>
Exchange of Proposed Terms and Claim Elements for Construction	N/A	9/26/2024	<b>8/16/2024</b>
Exchange of Preliminary Claim Constructions and Extrinsic Evidence	9/9/2024	10/25/2024	<b>8/30/2024</b>
Joint claim construction and Prehearing Statement	10/3/2024	12/11/2024	<b>9/20/2024</b>
Opening expert disclosures for claim construction	7/29/2024	12/11/2024	<b>9/20/2024</b>
Rebuttal expert disclosures for claim construction	8/23/2024	1/10/2025	<b>10/4/2024</b>
Completion of claim construction discovery	N/A	2/6/2025	<b>10/18/2024</b>
Opening claim construction briefs	10/28/2024	2/13/2025	<b>11/1/2024</b>
Responsive claim construction briefs	11/12/2024	2/28/2025	<b>11/15/2024</b>
Claim construction hearing	12/16/2024	To be set by the Court	<b>12/16/2024</b>
Expert Reports	2/3/2025	N/A	<b>2/3/2025</b>
Discovery Motion Cutoff	2/20/2025	N/A	<b>2/20/2025</b>
Rebuttal Expert Reports	3/3/2025	N/A	<b>3/3/2025</b>
Close of Fact Discovery	3/24/2025	N/A	<b>4/11/2025</b>
Daubert Motions	4/30/2025	N/A	<b>4/30/2025</b>
Settlement Conference	6/2/2025	N/A	<b>6/2/2025</b>
Motions in Limine	8/4/2025	N/A	<b>8/4/2025</b>
Pretrial Order	8/15/2025	N/A	<b>8/15/2025</b>
Pretrial Conference	8/18/2025	N/A	<b>8/18/2025</b>
Trial Briefs	8/26/2025	N/A	<b>8/26/2025</b>
Trial	9/2/2025	To be set by the Court	<b>Sept. 2, 2025</b>

Regards,  
Joe



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## **EXHIBIT D**



Attorney Docket No.: H1500.00001  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent of: O'Toole et al.

Confirmation No.:

Patent No.: 11,357,893

Group Art Unit:

Issue Date: June 14, 2022

Examiner:

Title: BREAST PUMP SYSTEM

**THIRD PARTY REQUEST FOR *EX PARTE* REEXAMINATION**  
**PURSUANT TO 37 CFR 1.510 OF PATENT NO. 11,357,893**

**Mail Stop *Ex Parte* Reexam**

Attn: Central Reexamination Unit  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Commissioner:

Pursuant to 35 U.S.C. §§ 302-305 and 37 C.F.R. § 1.510, the Requester submits this detailed request as an attachment to Form PTO/SB/57 Request for *Ex Parte* Reexamination Transmittal Form requesting *ex parte* reexamination of claims 1-28 of U.S. Patent No. 11,357,893 (the "'893 Patent"), entitled, "BREAST PUMP SYSTEM," which includes, at least: a) a statement identifying each substantial new question of patentability based on prior patents and printed publications pursuant to 37 CFR 1.510(b)(1); and b) an identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested pursuant to 37 CFR 1.510(b)(2).

A copy of the '893 Patent to be reexamined having a double column format on separate paper is filed herewith pursuant to 37 CFR 1.510(b)(4), including a copy the certificate of correction issued August 16, 2022, in the patent. (Exhibit 1001.)

*In re* Patent of: O'Toole *et al.*

Attorney Docket No.: H1500.00001

A listing of every patent or printed publication relied upon is filed herewith on a Form PTO/SB/08, along with a copy of every patent or printed publication relied upon. (Exhibits 1004-1012.)

It is certified that the statutory estoppel provisions of 35 U.S.C. 315(e)(1) or 35 U.S.C. 325(e)(1) do not prohibit Requester from filing this *ex parte* reexamination request. 37 CFR 1.510(b)(6). Requester has not been party to any *inter partes* or post grant review of the challenged patent.

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*In re* Patent of: O'Toole *et al.*

Attorney Docket No.: H1500.00001

**EXHIBITS**

<b>Exhibit</b>	<b>Description</b>
1001	O'TOOLE et al., U.S. Patent No. 11,357,893 ("the '893 Patent")
1002	File History for the '893 Patent
1003	Declaration of Ryan Bauer
1004	KHALIL et al., U.S. Publication No. 2013/0023821 A1 ("Khalil")
1005	KURIHARA et al., U.S. Publication No. 2016/0271305 A1 ("Kurihara")
1006	Myers et al., U.S. Publication No. 2007/0219486 A1 ("Myers")
1007	BAKER et al., U.S. Publication No. 2009/0281485 A1 ("Baker")
1008	HU, U.S. Publication No. 2015/0157775 A1 ("Hu")
1009	Schlenso et al., U.S. Patent No. 4,673,388 ("Schlenso")
1010	Miller et al., U.S. Publication No. 2016/0325031 A1 ("Miller")
1011	Guthrie et al., U.S. Publication No. 2016/0220743 A1 ("Guthrie")
1012	Alvarez, International Publication No. 2015/120321 A1 ("Alvarez")

**DETAILED REQUEST****I. Identification of Claims for Which Reexamination Is Requested**

In accordance with 37 CFR 1.510, reexamination of claims 1-28 of the '893 Patent is requested, in view of the following references:

Khalil, U.S. Publication No. 2013/0023821 A1 ("Khalil")  
 Kurihara, U.S. Publication No. 2016/0271305 A1 ("Kurihara")  
 Myers, U.S. Publication No. 2007/0219486 A1 ("Myers")  
 Baker, U.S. Publication No. 2009/0281485 A1 ("Baker")  
 Hu, U.S. Publication No. 2015/0157775 A1 ("Hu")  
 Schlensog, U.S. Patent No. 4,673,388 ("Schlensog")  
 Miller, U.S. Publication No. 2016/0325031 A1 ("Miller")  
 Guthrie, U.S. Publication No. 2016/0220743 A1 ("Guthrie")  
 Alvarez, International Publication No. 2015/120321 A1 ("Alvarez")

Reexamination of claims 1, 3, 7-11, 14-21, 23, and 25 are requested in view of Khalil. Reexamination of claims 1-3, 7-11, 14-23, and 25 are requested in view of the combination of Khalil in view of Kurihara. Reexamination of claim 4 is requested in view of a combination of Khalil in view of Kurihara, and further in view of Myers. Reexamination of claim 5 is requested in view of a combination of Khalil in view of Kurihara, and further in view of Baker. Reexamination of claims 6 and 28 are requested in view of a combination of Khalil in view of Kurihara, and further in view of Hu. Reexamination of claim 12 is requested in view of a combination of Khalil in view of Kurihara, and further in view of Schlensog. Reexamination of claim 13 is requested in view of a combination of Khalil in view of Kurihara, and further in view of Miller. Reexamination of claim 22 is requested in view of a combination of Khalil in view of Kurihara, and further in view of Guthrie. Reexamination of claims 24, 26, and 27 are requested in view of a combination of Khalil in view of Kurihara, and further in view of Alvarez.

**II. Statement Pointing Out Each Substantial New Question of Patentability**

The purported invention of the '893 Patent is a self-contained, wearable, electric breast pump that lactating mothers can wear and use discreetly under their undergarments. But such a breast pump was already well-known in the prior art. For example, Khalil, disclosed a self-

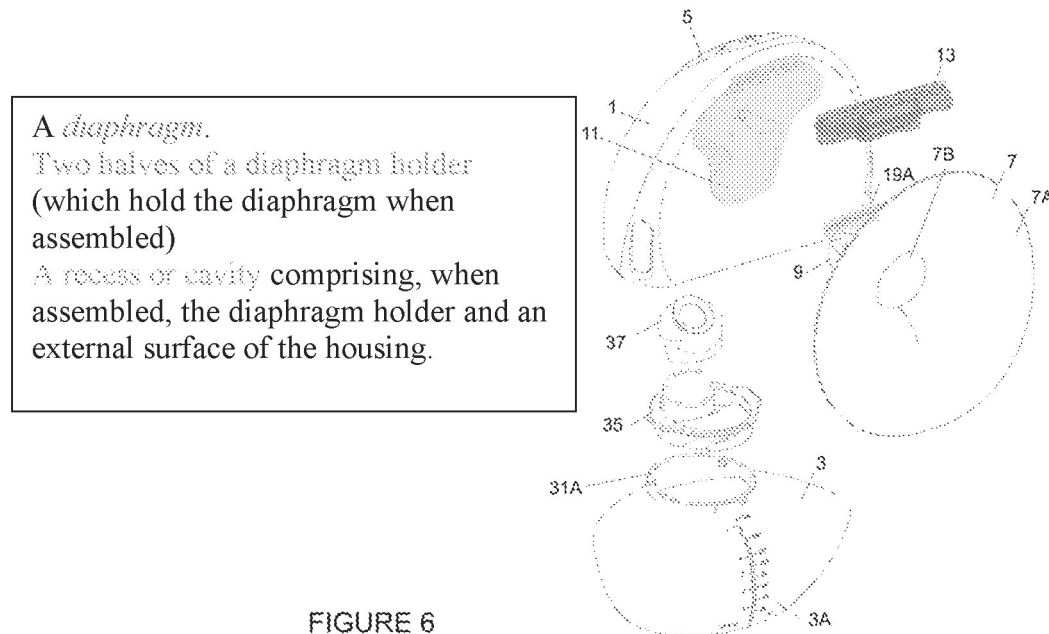


contained, wearable, electric breast pump almost identical to that of the '893 Patent. (Khalil, ¶ 70.)

To overcome Khalil in prosecution, Patent Owner (PO) added the following limitation:

a *diaphragm* configured to be seated against a *diaphragm holder* that forms a *recess or cavity* at least in part with an external surface of the housing, the diaphragm deforming in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.

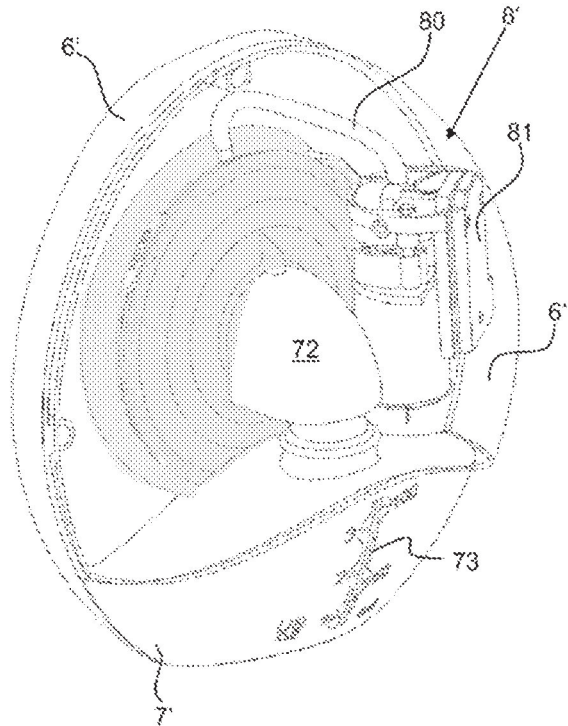
This language reflects the specific configuration depicted in Figure 6 of the '893 Patent, which provides an exploded view of an embodiment of the claimed breast pump assembly.



The prosecution history makes plain that this specific configuration of diaphragm, diaphragm holder, and housing recess was the sole basis for allowance.

A substantial new question exists here because the examiner overlooked an important technical teaching in Khalil, evident at least in Figure 10 but in other figures as well. This figure depicts the interior (obverse) perspective of the external surface of the housing, and it shows a shallow recess in the external surface that forms a cavity together with the diaphragm holder.<sup>1</sup>

<sup>1</sup> The diaphragm is also present but not visible in Figure 10 because it is on the opposite side of the holder.

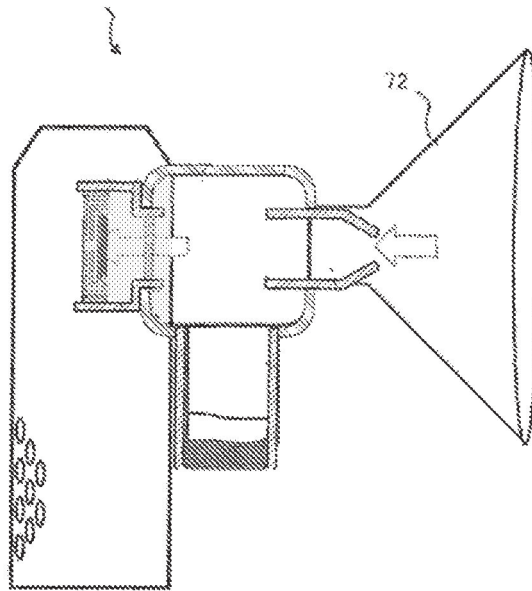
**FIG. 10**

The examiner misconstrued Khalil, mischaracterizing the diaphragm in Khalil as “shown to be fully positioned within the housing so that it is enclosed by the housing and cannot be considered to form a recess or cavity with an external surface of the housing.” (Ex. 1002 at 17 (Nov. 4, 2021 Final Rejection at Page 27); Ex. 1003 (Expert Report of Ryan Bauer) (“Bauer”), ¶ 38.) On that erroneous basis, the examiner concluded that the claim limitations quoted above was sufficient to overcome Khalil. However, these limitations are insufficient when viewed in light of the technical teaching of Figure 10 as a person of skill in the art would have understood it. Khalil by itself therefore anticipates, or at least renders obvious, the ’893 Patent claims.

Further supporting the first substantial new question of patentability is the broad construction of claim 1 that PO has applied in its enforcement efforts. As discussed in more detail below, PO in its enforcement efforts has construed the “recess or cavity” limitation so broadly as to cover *any* configuration that has a diaphragm holder, regardless of the shape of the external surface of the pump housing or the absence of any recess therein. So construed, it is clear that Khalil must satisfy the “recess or cavity” limitation.

A second substantial new question of patentability is presented in the Kurihara reference that the examiner never addressed. Kurihara also disclosed the claimed configuration. Kurihara

discloses a breast pump having a piezoelectric pump disposed in a recess of the pump housing. The piezoelectric pump comprises a diaphragm and diaphragm holder. Kurihara's configuration is shown in the illustration below, which combines Kurihara's high-level Figure 6 with Kurihara's more detailed Figure 1B. It depicts a diaphragm holder and diaphragm disposed in a recess or cavity of a housing:



Thus, even if Khalil alone does not anticipate Claim 1, Khalil in combination with Kurihara renders it obvious.

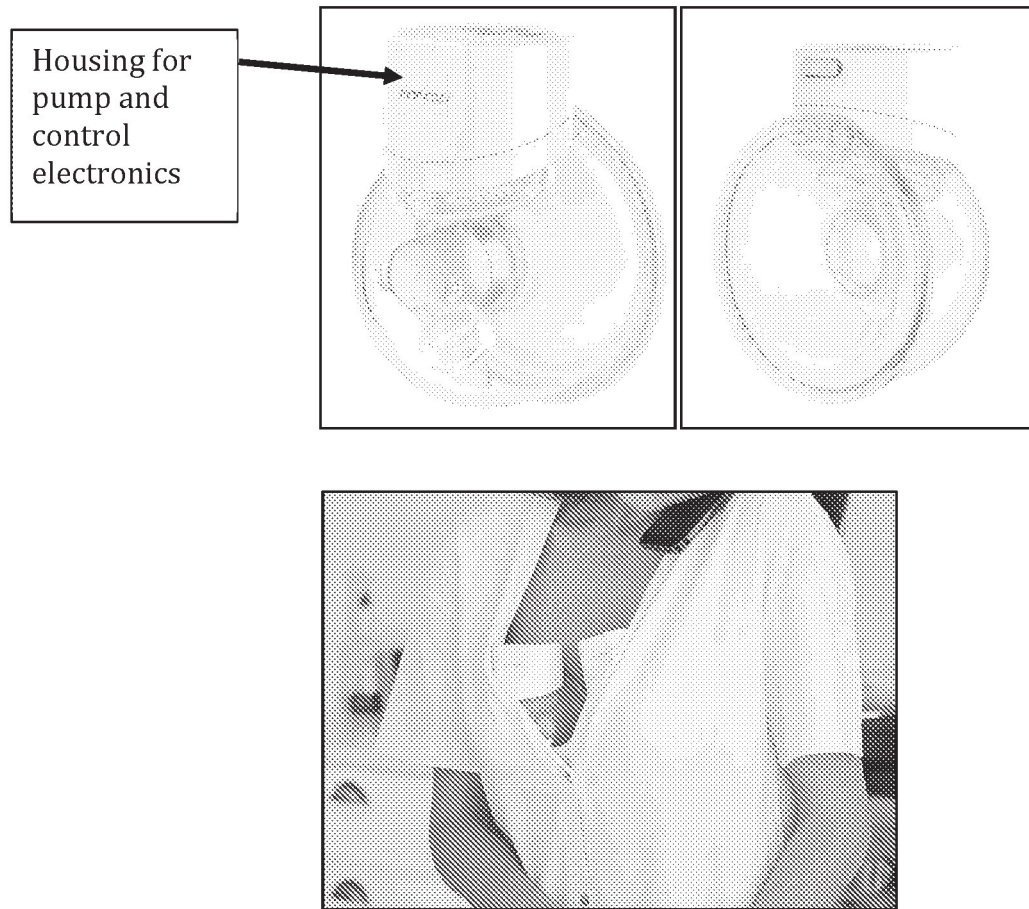
### **III. Patent Owner's Broad Construction of the '893 Patent Claims**

The Patent Owner's efforts to enforce the '893 Patent shed light on the broadest reasonable interpretation of the claims. Particularly relevant is the Patent Owner's assertion of the '893 Patent against a product called the Momcozy S12 Pro. (Bauer, ¶ 42.) That product is a breast pump having a generally cylindrical pump, battery, and control housing unit that extends out from the bra as shown in the following photos. (*Id.*, ¶¶ 43-49.)

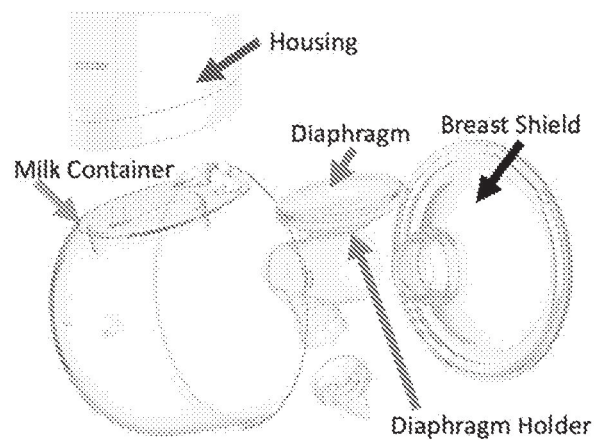


*In re* Patent of: O'Toole *et al.*

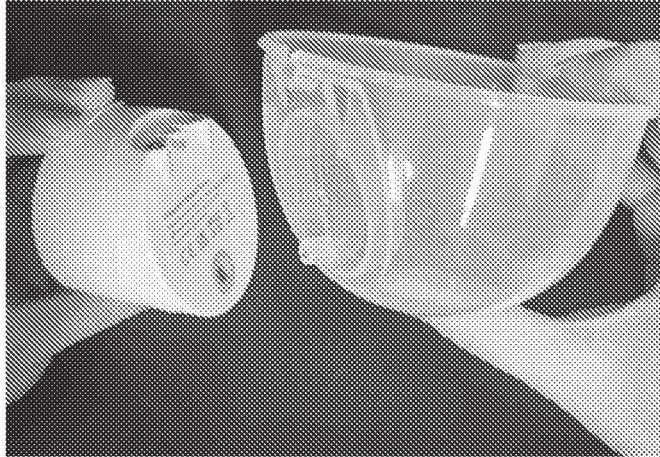
Attorney Docket No.: H1500.00001



The Momcozy S12 Pro diaphragm holder and diaphragm are *entirely* within the milk container, which includes a circular projection from its inner wall that receives the diaphragm. (*Id.*, ¶ 44.)



As shown in the below photo, the external surface of the pump housing is flat, i.e., without a recess or cavity:



(*Id.*, ¶ 45.) In the S12 Pro, an opening in the housing accepts into the interior a tube extending from the outer surface of the milk container. (*Id.*, ¶ 46.) This interconnection between the milk container and the housing allows the negative pressure generated by the pump to be transmitted to the diaphragm in the milk container, causing it to deform and create negative pressure in the nipple tunnel. (*Id.*) The tube extending from the milk container provides neither a physical seal nor a place for seating the diaphragm. (*Id.*) There is no recess on the external surface of the pump housing and the S12 Pro's diaphragm holder resides entirely within the milk container. (*Id.*)

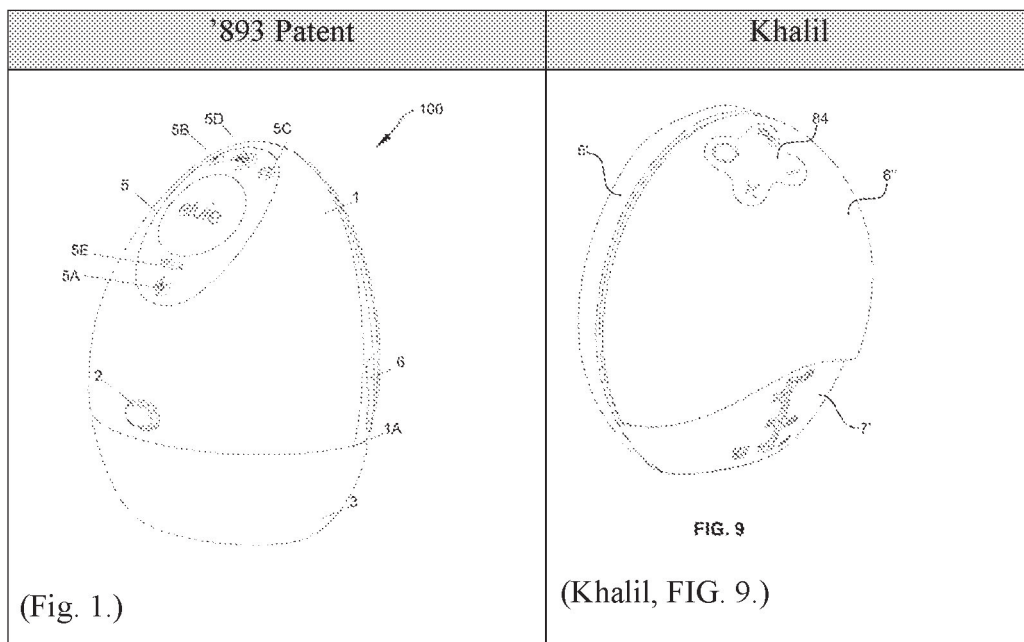
Notwithstanding the foregoing, PO has asserted in litigation that the configuration described above satisfies the limitation that the diaphragm holder “forms a recess or cavity at least in part with an external surface of the housing.” Moreover, PO has taken this position in litigation where, unlike here, claims are to be construed more narrowly than their broadest reasonable interpretation. To be clear, *Requester does not concede that PO's construction of the claims is correct*, particularly under the claim construction standard that applies in litigation. Rather, Requester points out that if claims were construed as broadly as PO's assertion efforts suggest, it is difficult to conceive of any breast pump configuration having a diaphragm holder that does not satisfy the “recess or cavity” limitation of the claims under PO's construction. “Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers.” *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) (citing *Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1562 (Fed.Cir.1991)). According to PO, a structure having a diaphragm and diaphragm holder entirely in the milk container is the same as or equivalent to a diaphragm and diaphragm holder located in a recess or

cavity formed with the external surface of the housing. (Bauer, ¶ 48.) As discussed below, many prior art references disclose diaphragm holders which easily satisfy this limitation broadly construed as PO has proposed.

#### **IV. Detailed Explanation Under 37 CFR 1.510(b)**

1. Claims 1, 3, 7-11, 14-21, 23, 25 of the '893 Patent are unpatentable under 35 U.S.C. 102(a) as being anticipated by Khalil.

US Publication US 2013/0023821 A1 (Khalil) published on January 24, 2013, and is prior art under Section 102(a)(1) and (a)(2). It discloses a self-contained, hands-free breast-pump system with a housing configured to be worn by the user. (Khalil, ¶ 70; Bauer, ¶ 58.)



Khalil discloses a breast shield 1 with an opening for a nipple (nipple tunnel) and an electrically operated diaphragm vacuum pump, operated by an electric motor, that generates a vacuum. (Khalil, ¶ 61; Bauer, ¶ 61.) As in the '893 Patent, the diaphragm is a flexible membrane to permit the required pulsing. (Khalil, ¶ 54; Bauer, ¶ 61.) Milk is expressed from the nipple, filling the vacuum chamber. (Khalil, ¶ 61; Bauer, ¶ 61.) Milk passes through a one-way valve and a milk line. (Khalil, ¶ 62; Bauer, ¶ 61.)



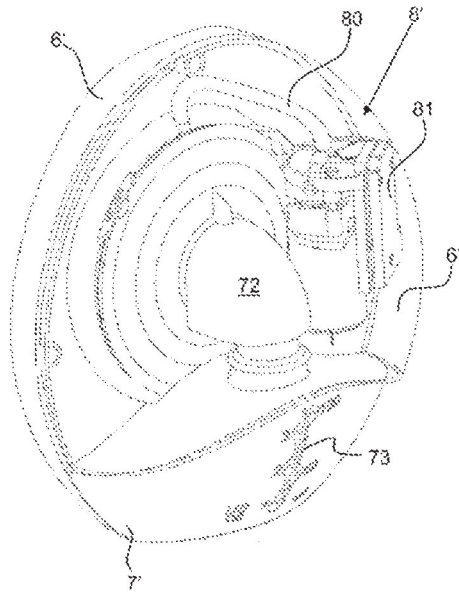


FIG. 10

Pump 81 is shown located close to the base of the housing (comprising 6' and 6''), above milk container 73. (Bauer, ¶ 63.) As seen in FIG. 10, the milk container is shaped to continue the housing curve, mimicking a breast shape. The milk container is made of a rigid material and is releasably attached to the housing. (Khalil, ¶ 69; Bauer, ¶ 63.)

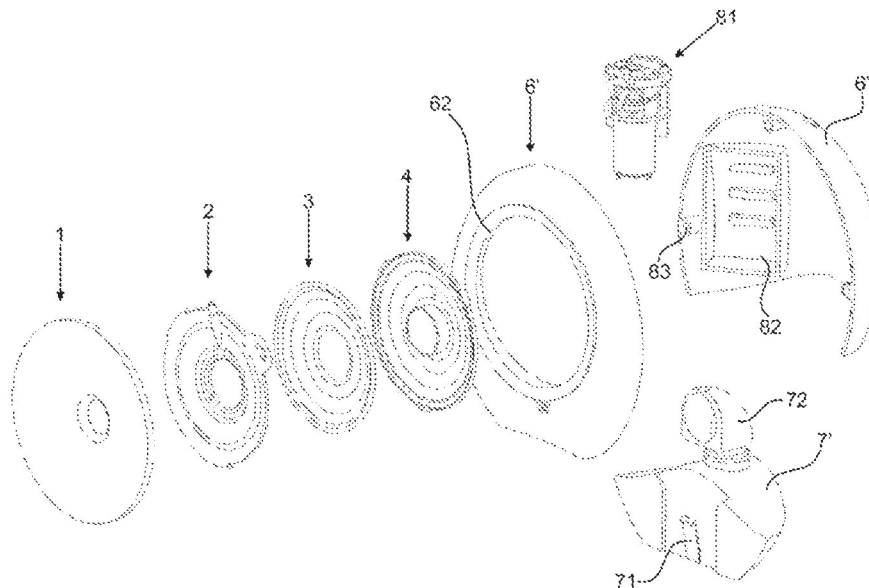
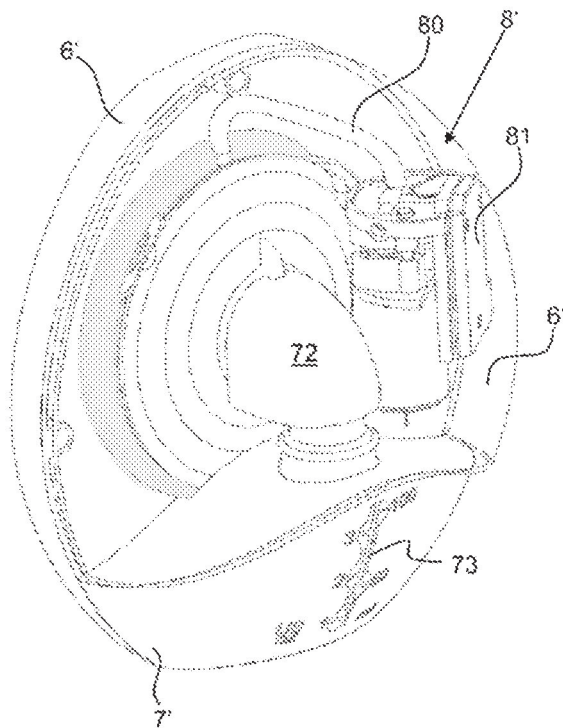


FIG. 11

FIG. 11, also shows that diaphragm (3) is seated between two portions of a diaphragm housing comprising membrane holders 2 and 4. (Khalil, ¶ 25; Bauer, ¶ 64.) Membrane holder 4 interfaces with pump housing 6'. (Khalil, ¶¶ 66, 67; Bauer, ¶ 64.)

As discussed above, the Examiner erroneously concluded that the amended claims overcame Khalil on the ground that the diaphragm in Khalil is “shown to be fully positioned within the housing so that it is enclosed by the housing and cannot be considered to form a recess or cavity with an external surface of the housing.” (Ex. 1002 at 27 (Nov. 4, 2021, Final Rejection at Page 16); Bauer, ¶ 38.) That was wrong least because the examiner overlooks teachings Khalil showing such a recess. Moreover, if the PO’s broad claim construction were applied and a diaphragm holder alone were construed to form a “recess or cavity” within the meaning of the claims (which Requester disputes) that would be flatly inconsistent with the Examiner’s reasons for allowing the claims.



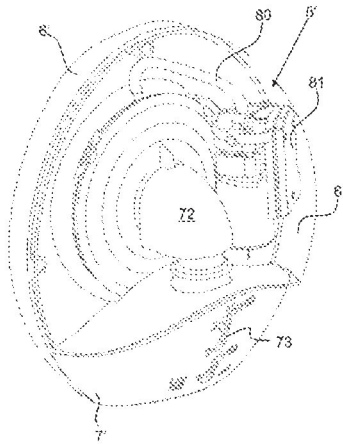
**FIG. 10**

In Figure 10, which is an obverse view of the external surface of the housing 6', the diaphragm holder is depicted as mating with a shallowly recessed portion of the housing 6'. (Bauer, ¶¶ 66-67.) Khalil therefore meets the limitation the recess or cavity is formed “at least in part with an external surface” of the housing under any construction. (*Id.*)

Furthermore, the examiner did not have the benefit of PO’s broad claim construction positions taken in litigation. As discussed above, the PO has accused a device that has no recess or cavity in the external surface of the pump housing at all. For this reason, among others, Requester contends that PO’s accusations are not well-founded. Nevertheless, it is important to

note that, according to PO, the recess or cavity may be supplied by the diaphragm holder alone without regard to the shape of the external surface of the pump housing. If that overbroad construction were adopted, it should be noted that Khalil diaphragm holder 4, unlabeled in this Figure 10 but depicted and labeled in Figure 11 above, *also* supplies what PO contributes to be a recess or cavity. This, alone or in combination with the recess in the external housing identified in Figure 10 above, creates a recess or cavity as PO construes that term.

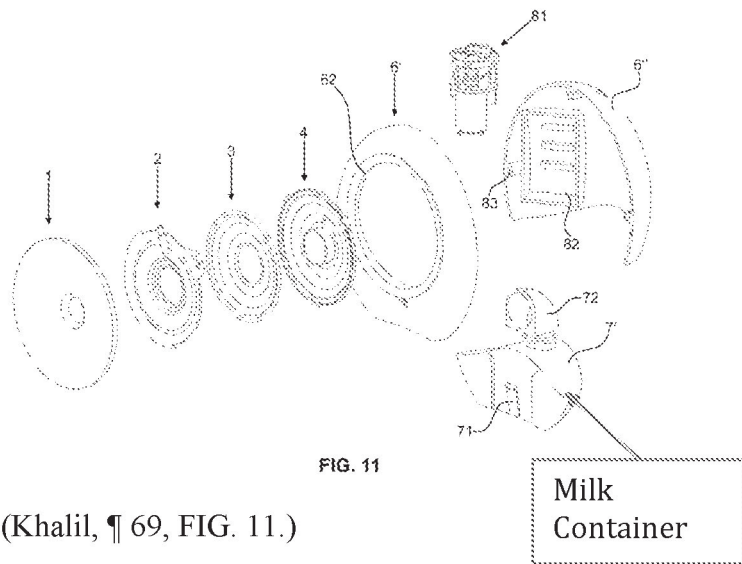
### Claim Chart

<u>The Claims of the '893 Patent</u>	<u>Khalil</u>
1. A breast pump device that is configured as a self-contained, in-bra wearable device, the breast pump device comprising:	Khalil discloses a self-contained in-bra wearable device. (Khalil, ¶ 32 (noting that “[t]he breastshield unit according to the invention can be designed as a hands-free unit and worn under a bra.”).)
a housing that includes a battery,	<p>Khalil discloses housing 6 that includes an electrically driven pump 81 located within the housing (6' and 6'') as seen in FIG. 10:</p>  <p style="text-align: center;">FIG. 10</p> <p>(Khalil, ¶ 67.) Khalil does not explicitly disclose whether or not the electrically driven pump would be powered by a battery, but given the hands-free nature of the device and the lack of cords, one of ordinary skill in the art would have known to have used a battery to provide the electrical power for the electrically driven pump.</p>



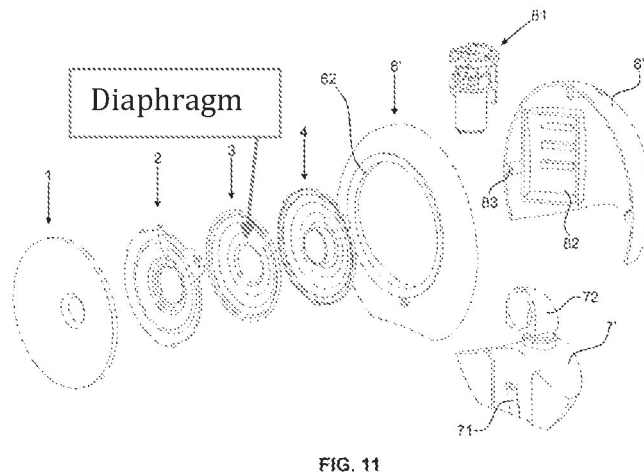
a milk container that is configured to be attached to and removed from the housing; and

Khalil discloses milk container 7' configured to be attached to and removed from the housing through the use of locking lug 71 as seen in FIG. 11:



a diaphragm

Khalil discloses diaphragm (i.e., “membrane”) 3 as seen in FIG. 11:

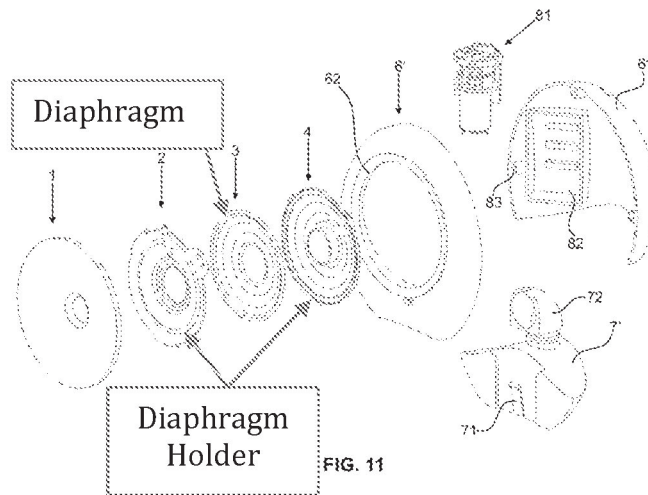


(Khalil, ¶ 66, FIG. 11.)



configured to be seated against a diaphragm holder

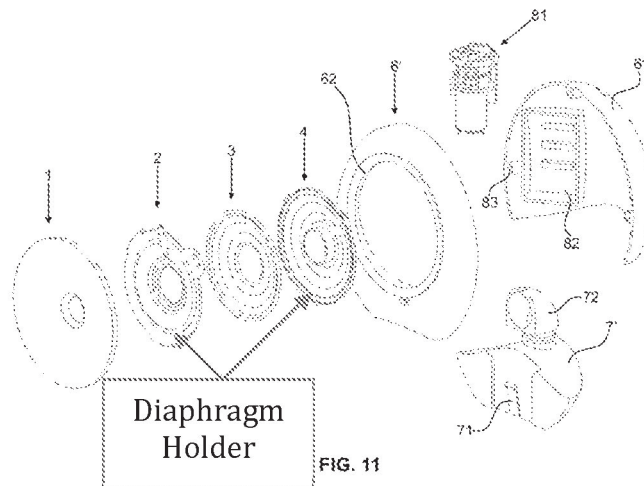
Khalil discloses the diaphragm (i.e., “membrane”) 3 configured to be seated against a diaphragm holder (i.e., “membrane housing part”) 4 and 2.



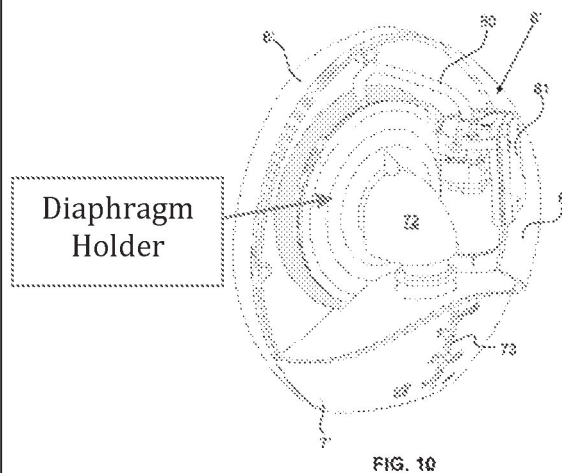
(Khalil, ¶ 66, FIG. 11.)

[a diaphragm holder] that forms a recess or cavity at least in part with an external surface of the housing,

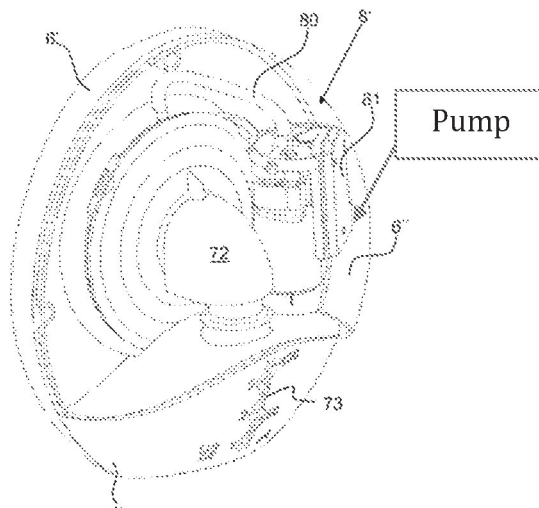
The diaphragm holder (i.e., “membrane housing part”) 4 and 2 disclosed by Khalil rests upon the external surface of the housing 6' as seen in FIG. 11:

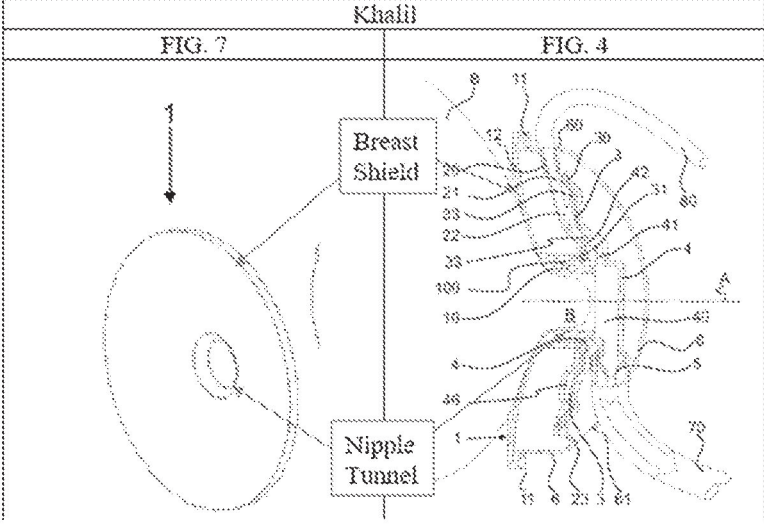


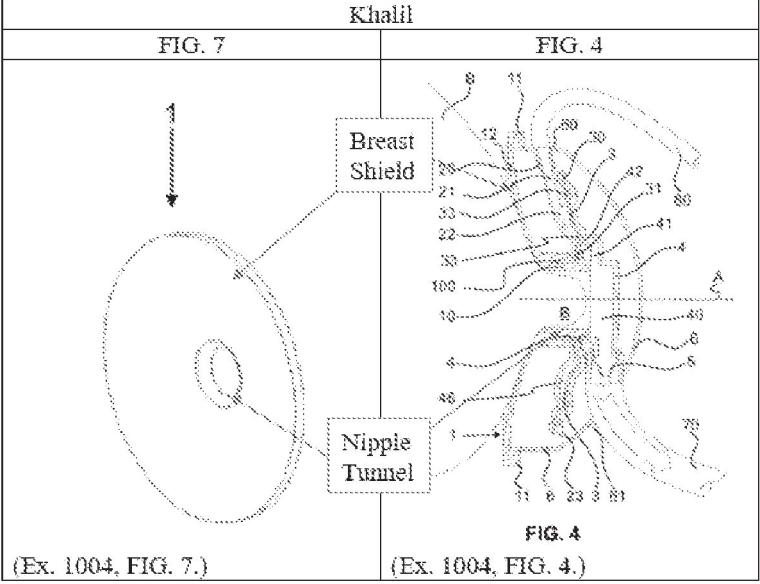
As seen in FIG. 10, the diaphragm holder is shown to interface with a portion of the housing 6' colored in blue, thus forming a shallow recess at least in part with an external surface of the housing (i.e., housing 6').



As discussed above, PO's unreasonably broad claim construction positions taken in litigation supply an additional potential ground to find the claimed recess or cavity in Khalil. As discussed above, the PO has accused the Momcozy S12 Pro device that has no recess or cavity in the external surface of the pump housing at all. Rather, according to PO, the recess or cavity may be supplied by the diaphragm holder alone without regard to the shape of the external surface of the pump housing. If that unreasonably broad construction were to be applied consistently here, it

	<p>should be noted that Khalil diaphragm holder 4, unlabeled in this Figure 10 but depicted and labeled in Figure 11 above, also supplies what PO contributes to be a recess or cavity. This, alone or in combination with the recess in the external housing identified in Figure 10 above, creates a recess or cavity as PO unreasonably construes that term.</p>
<p>the diaphragm deforming in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.</p>	<p>For the breast pump system of Khalil to function, the diaphragm deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel. (Khalil, ¶ 61 (noting that “by the movement of the membrane [i.e., diaphragm] 3, an underpressure [i.e., negative pressure] is generated in the pump chamber 46 and therefore in the underpressure chamber 40. Milk is expressed from the mother’s breast . . .”).)</p>
<p>3. The breast pump device of claim 1, wherein the pump is positioned at or close to a base of the housing.</p>	<p>Khalil discloses that the pump 81 is positioned close to the base of housing 6 (6’/6”) as seen in FIG. 10:</p>  <p>FIG. 10</p> <p>(Khalil, ¶ 66, FIG. 11.)</p>

<p>7. The breast pump device of claim 1, wherein the breast shield is configured to rotate smoothly around a nipple inserted into the nipple tunnel to provide a correct positioning of the breast shield onto a breast.</p>	<p>The uniform nature of the breast shield 1 of Khalil allows it to rotate smoothly around the nipple inserted into the nipple tunnel and provide the correct positioning of the breast (as shown in FIGs. 4 and 7).</p>  <p>The diagram shows two views of a breast pump device. FIG. 7 is a top-down view of a circular breast shield (1) with a central nipple tunnel (2). FIG. 4 is a side cross-sectional view of the same device, showing the breast shield (1) and nipple tunnel (2) integrated as a single piece. The breast shield (1) has a flange (3) and a central opening (4) for the nipple tunnel (2). The nipple tunnel (2) has a flange (5) and a central opening (6) for the nipple. The device is shown in use, with a breast (7) positioned against the breast shield (1) and a nipple (8) inserted into the nipple tunnel (2). Various components are labeled with reference numerals: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.</p>
<p>8. The breast pump device of claim 1, wherein the breast shield is a one piece item that, in use, presents a single continuous surface to a nipple and a breast.</p>	<p>Khalil discloses that the breast shield and nipple tunnel are a one-piece item, that presents a continuous surface to a nipple and a breast as shown above in FIGs. 4 and 7. (Khalil, FIGs. 4, 7.)</p>
<p>9. The breast pump device of claim 1, wherein the breast shield integrates the breast flange and nipple tunnel as a one-piece item.</p>	<p>Khalil discloses that the breast shield integrates the breast flange and nipple tunnel as a one-piece item as shown above in FIGs. 4 and 7. (Khalil, FIGs. 4, 7.)</p>
<p>10. The breast pump device of claim 1, wherein the breast flange and the nipple tunnel are a single, integral item with no joining stubs.</p>	<p>Khalil discloses that the breast flange and the nipple tunnel are a single, integral item with no joining stubs as shown above in FIGs. 4 and 7. (Khalil, FIGs. 4, 7.)</p>

<p>11. The breast pump device of claim 1, wherein the breast shield is generally symmetrical about a centre-line running from a top to a bottom of the breast shield when positioned upright for normal use.</p>	<p>Khalil discloses that 1 is generally symmetrical about a centre-line “A” as seen in FIG. 4. (Khalil, FIGs. 4, 7.)</p> 
<p>14. The breast pump device of claim 1, wherein the diaphragm is a flexible membrane.</p>	<p>Khalil discloses that the diaphragm (i.e., “membrane 3”) is a flexible membrane. (Khalil, ¶ 54.)</p>
<p>15. The breast pump device of claim 1, wherein the diaphragm is substantially circular and is configured to self-seal under the negative air pressure to a substantially circular diaphragm holder that is part of the housing.</p>	<p>Khalil discloses that the diaphragm holder is substantially circular. (Khalil, ¶ 64, FIG. 11.) The diaphragm of Khalil would self-seal against holder 2 when the device is in use such that negative pressure is applied to a breast via the breast flange 1.</p>
<p>16. The breast pump device of claim 1, wherein the milk container is substantially rigid.</p>	<p>Khalil discloses that the milk container is substantially rigid. (Khalil, ¶ 69 (noting that the milk collection container “is preferably made of plastic”).)</p>



17. The breast pump device of claim 1, wherein the milk container is configured to attach to a lower part of the housing and to form a flat bottomed base for the breast pump device.

As seen in FIG. 9, Khalil discloses that the milk container 7' is configured to attach to a lower part of the housing 6 and to form a flat bottomed base for the breast pump device:



FIG. 9

(Khalil, FIG. 9.)

18. The breast pump device of claim 1, wherein the milk container has a surface shaped to continue a curved shape of the housing, so that the breast pump device can be held comfortably inside the bra.

As seen in FIG. 9, Khalil discloses that the milk container 7' has a surface shaped to continue a curved shape of the housing, so that the breast pump device can be held comfortably inside the bra:

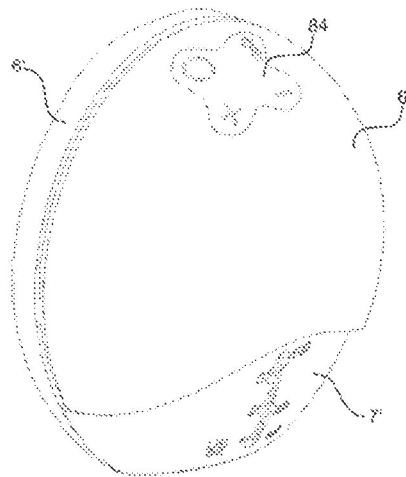


FIG. 9

(Khalil, FIG. 9.)

19. The breast pump device of claim 1, wherein the milk container includes a flexible valve that self-seals under negative air pressure against a milk opening in the nipple tunnel and that permits milk to flow into the milk container.

Khalil discloses flexible valve that self-seals under pressure (i.e., integrated valve within coupling part 72 that corresponds to non-return valve 5 in other embodiments) against a milk opening connected to the nipple tunnel and that permits milk to flow into the milk container 7' as shown in FIG. 10:

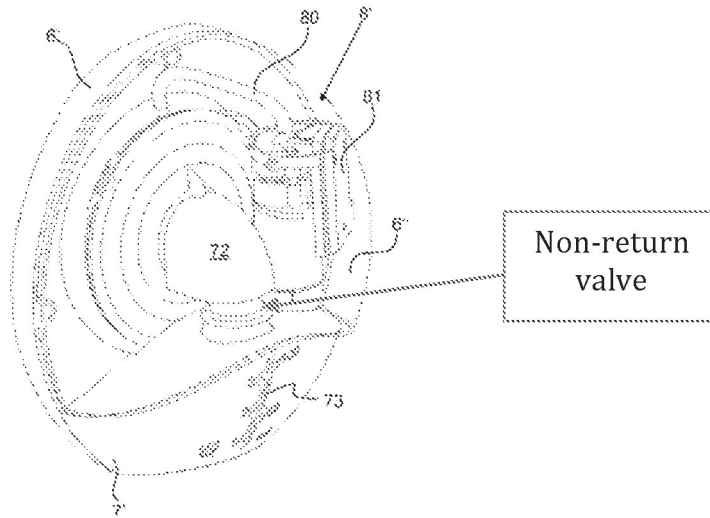
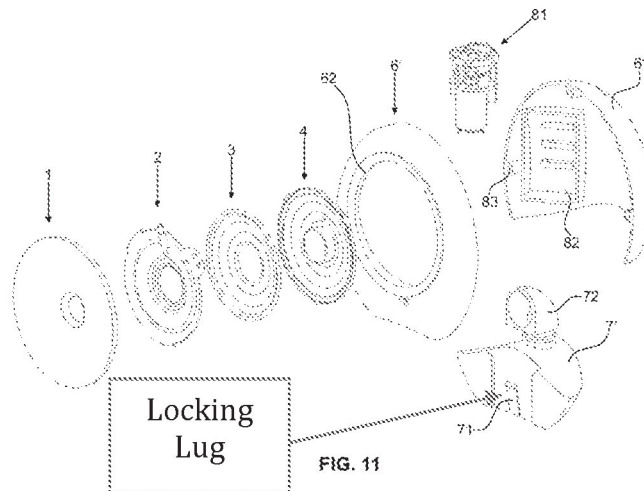


FIG. 10

(Khalil, FIG. 10.)

20. The breast pump device of claim 1, wherein the milk container is attachable to the housing with a mechanical or magnetic mechanism that releasably attaches or latches when the milk container is sufficiently pressed on to the housing with a single push action.

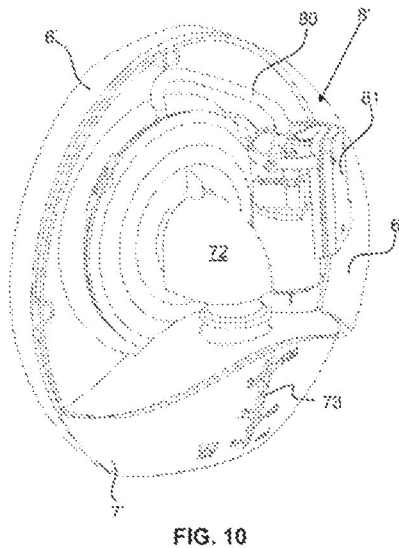
Khalil discloses that milk container 7' is attachable to the housing with a mechanical mechanism (i.e., "locking lug") 71 that releasably attaches when the milk container 7' is sufficiently pressed on to the housing with a single push action.



(Khalil, ¶ 69, FIG. 11.)

21. The breast pump device of claim 1, wherein the milk container includes a cap that is removable from the milk container and a removable valve that enables milk to pass into the milk container in one direction.

Khalil teaches that milk container 7' includes a cap (i.e., "coupling part") 72 that includes a removable valve (within coupling part 72) that enables milk to pass into the milk container 7' in one direction. (Khalil, ¶ 69; FIG. 10.)





23. The breast pump device of claim 1, wherein the milk container is wider than the milk container is tall.

Khalil discloses that milk container 7' is wider than the milk container is tall, as seen in FIG 9:

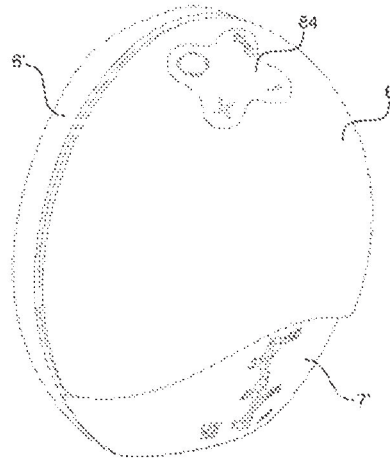


FIG. 9

(Khalil, FIG. 9.)

25. The breast pump device of claim 1, wherein the housing has a front surface that is configured to fit inside a bra and to contact an inner surface of the bra, and a rear surface that is shaped to contact, at least in part, the breast shield.

Khalil discloses that it is designed to be an in-bra wearable breast pump, and the curve of the housing as seen above in FIG. 9, is configured to fit inside a bra and necessarily contact the inner surface of the bra. The rear shape of the surface, through the use of circumferential securing flange 62, is shaped so that it can contact and hold the breast shield, as shown in FIG. 11:

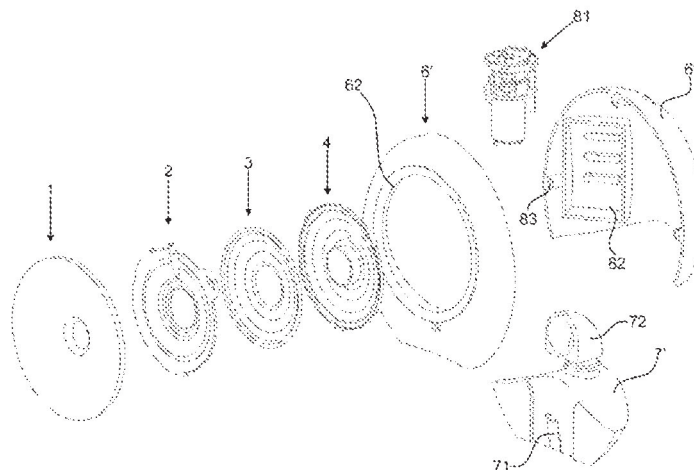
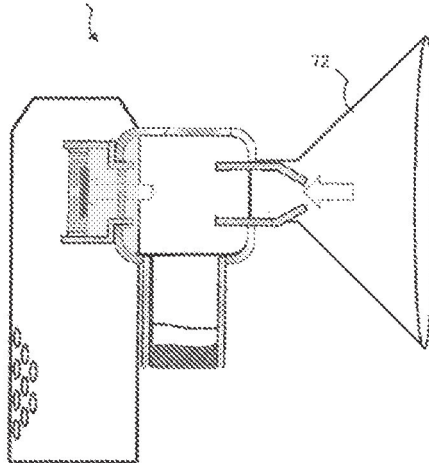


FIG. 11

(Khalil, FIGs. 9, 11.)

2. Claims 1-3, 7-11, 14-23, 25 of the '893 Patent are unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara.

Kurihara is prior art under Section 102(a). It discloses compact breast pump, the key components of which are a breast flange with a nipple tunnel, a milk container. (Kurihara, Fig. 6; Bauer, ¶ 103.) Overlaying Kurihara's detailed Figure 1B on its high-level Figure 6 is helpful to quickly grasp the Kurihara design. (Bauer, ¶¶ 105-107.) The illustration below is based on Figures 1B and 6. It depicts a diaphragm holder and diaphragm disposed in a recess or cavity of a housing:



Khalil's disclosure of the elements of Claim 1 is discussed in Ground 1 above. Even if Khalil itself were not viewed as disclosing that the diaphragm holder forms a recess or cavity at least in part with an external surface of the housing (which it does), Kurihara clearly teaches this limitation. (Bauer, ¶ 109.)

A person of skill in the art would have been motivated to combine Kurihara with Khalil for several reasons. First, both references are directed to the same narrow field of endeavor: compact, electrical breast pumps. (Bauer, ¶ 110.) They comprise substantially the same components: a breast flange, a milk container, and a housing containing an electric pump, as well as a diaphragm and diaphragm holder assembly. (*Id.*) Second, they both address the same specific issue relating to that field of endeavor, which is providing a breast flange and milk container assembly that is releasably attachable to a housing. (*Id.*) Third, they both address that issue in the same way: by providing a recess in the housing into which a portion of the breast flange assembly is received. (*Id.*) Additionally, there existed a well-known motivation in the art to use the teachings of Khalil and Kurihara to achieve a more compact design. Persons of skill in the art were aware that placing the diaphragm holder within a recess in the external

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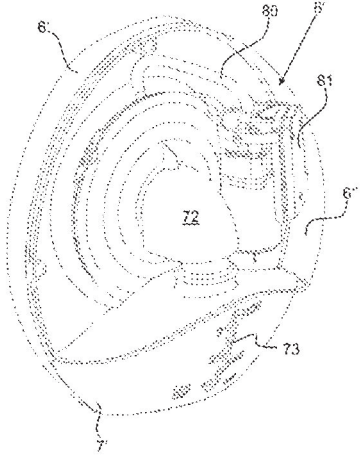
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surface of the housing would help to minimize the volume of air which the pump must depressurize. (*Id.*)

### Claim Chart

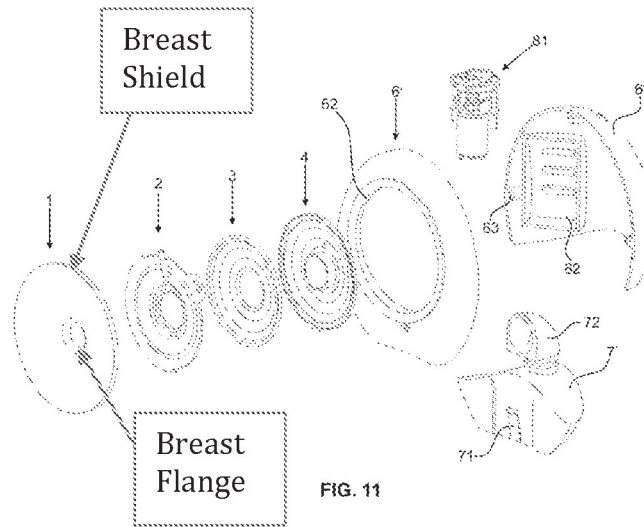
As discussed above, Khalil alone teaches at least the limitations of claims 3, 7-11, 14-23, and 25. Requester contends that Khalil alone also teaches the limitations of claim 1, however, but these limitations are also found in the combination of Khalil and Kurihara. Additionally, Khalil in combination with Kurihara teaches the limitations of claim 2.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara</u>
1. A breast pump device that is configured as a self-contained, in-bra wearable device, the breast pump device comprising:	Khalil discloses a self-contained in-bra wearable device. (Khalil, ¶ 32 (noting, “[t]he breastshield unit according to the invention can be designed as a hands-free unit and worn under a bra.”).)

<p>a housing that includes a battery,</p>	<p>Khalil discloses housing 6 that includes an electrically driven pump 81 located within the housing (6' and 6'') as seen in FIG. 10:</p>  <p>FIG. 10</p> <p>(Khalil, ¶ 67, FIG. 10.) Khalil does not explicitly disclose whether or not the electrically driven pump would be powered by a battery but given the hands-free nature of the device and the lack of cords, one of ordinary skill in the art would have known to have used a battery to provide the electrical power for the electrically driven pump.</p> <p>That is consistent with the teachings of Kurihara, which teaches the use of a battery to power its compact breast pumping unit. (See Kurihara, ¶ 54 (disclosing that a battery is contained within the housing).)</p>
<p>and a pump powered by the battery and generating negative air pressure;</p>	<p>As indicated above, Khalil discloses pump 81 as seen in FIG. 10. This pump generates a negative air pressure. (Khalil, ¶ 61 (noting that the pump unit generates a vacuum (i.e., negative air pressure).)</p>

a breast shield made up of a breast flange

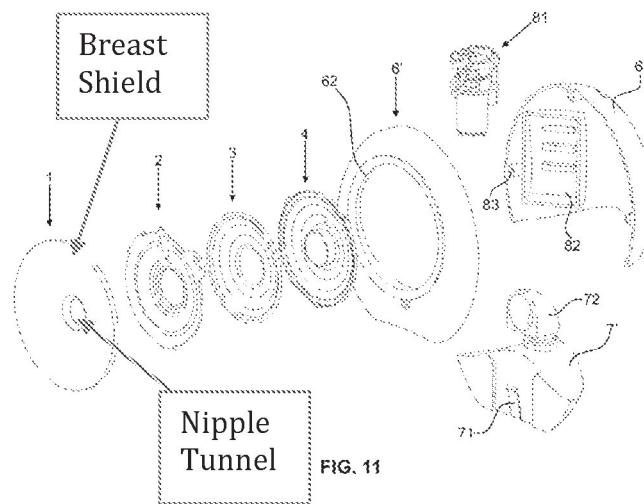
Khalil discloses breast shield (i.e., “breast interface”) 1 with a breast flange as seen in FIG. 11:



(Khalil, ¶ 67, FIG. 11.)

and [a breast shield made up of] a nipple tunnel;

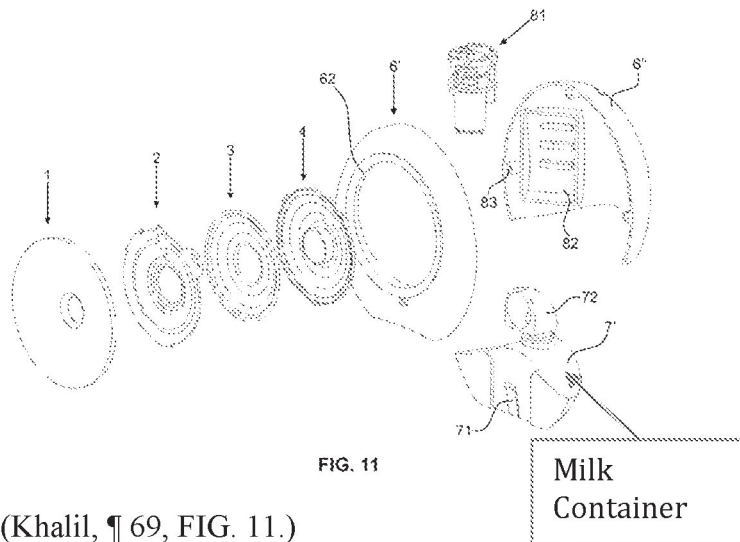
Khalil discloses a nipple tunnel that is part of the breast shield as seen in FIG. 11.



(Khalil, FIG. 11.)

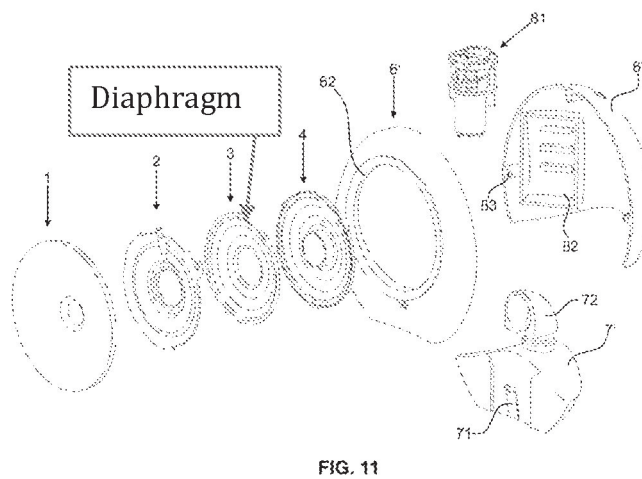
a milk container that is configured to be attached to and removed from the housing; and

Khalil discloses milk container 7' configured to be attached to and removed from the housing through the use of locking lug 71 as seen in FIG. 11:



a diaphragm

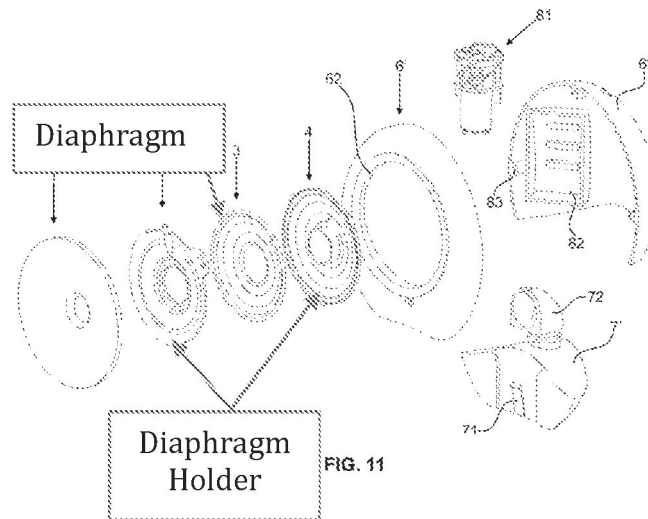
Khalil discloses diaphragm (i.e., “membrane”) 3 as seen in FIG. 11:





configured to be seated against a diaphragm holder

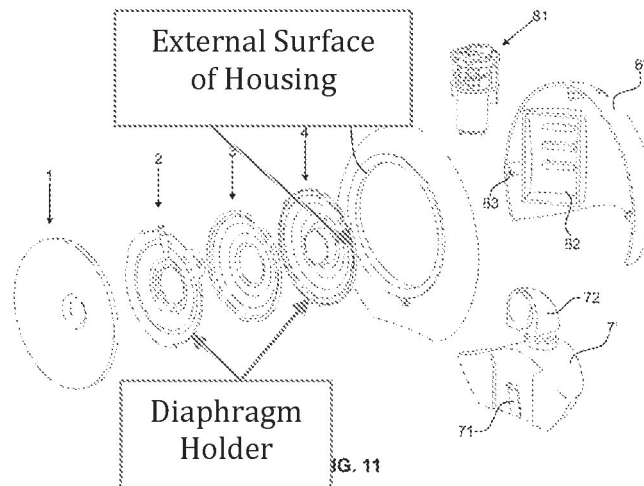
Khalil discloses the diaphragm (i.e., “membrane”) 3 configured to be seated against a diaphragm holder (i.e., “membrane housing part”) 4.



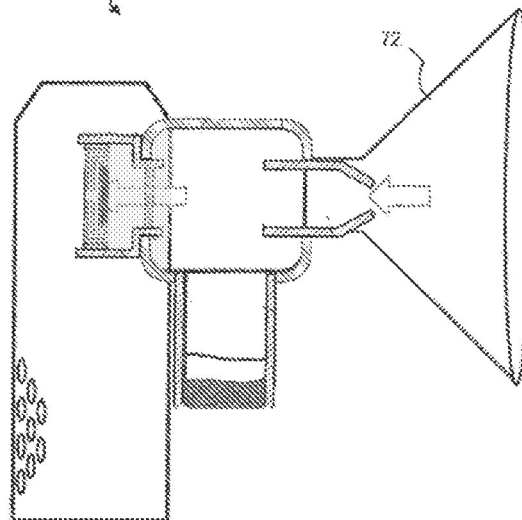
(Khalil, ¶ 66, FIG. 11.)

[a diaphragm holder] that forms a recess or cavity at least in part with an external surface of the housing,

The diaphragm holder (i.e., “membrane housing part”) 4 disclosed by Khalil is in connection with the external surface of the housing 6' along circumferential securing flange 62 as seen in FIG. 11:



Kurihara discloses a diaphragm seated against a diaphragm holder. The diaphragm holder forms a recess in part with the external housing of the breast pump.



(Illustration combining Kurihara, FIGs. 1B, 6.); Bauer ¶ 116.

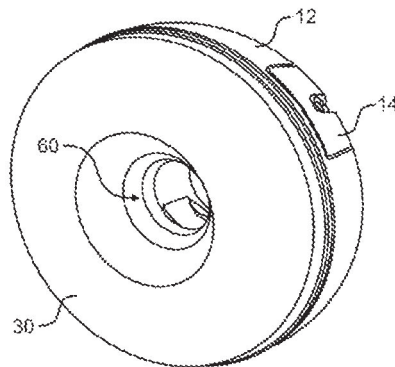
A POSITA would have been motivated to combine the teachings of Kurihara with Khalil at least in part to achieve a more compact design.



the diaphragm deforming in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.	For the breast pump system of Khalil to function, the diaphragm deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel. (Khalil, ¶ 61 (noting that “[b]y the movement of the membrane [i.e., diaphragm] 3, an underpressure [i.e., negative pressure] is generated in the pump chamber 46 and therefore in the underpressure chamber 40. Milk is expressed from the mother’s breast . . .”).)
2. The breast pump device of claim 1, wherein the pump comprises a piezo air pump system.	Khalil does not disclose the use of a piezo air pump system in connection with its breast pump system.  Kurihara teaches the use of a piezo air pump system. (Kurihara, ¶ 61; Bauer ¶ 116.) Recognizing the advantages of using a piezo air pump system, a POSITA would have been motivated to use the piezo air pump system taught by Kurihara in the breast pump system taught by Khalil.

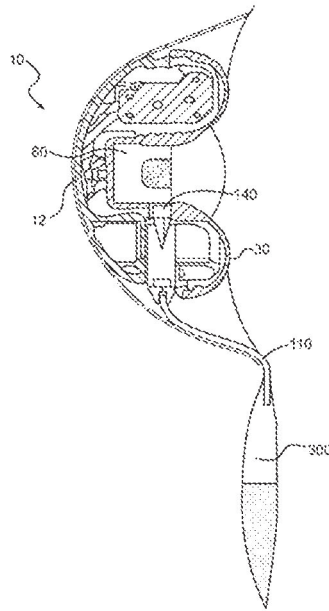
3. Claim 4 of the '893 Patent is unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Myers.

Myers was another in-bra wearable breast pump described over ten years before the effective filing date of the '893 Patent. (Myers; Bauer, ¶ 117.)



**FIG. 1B**

Like Khalil, Myers’ breast pump is a compact unit that gives the “natural appearance of the shape of a breast” and is meant to “concealed underneath the user’s clothing.” (Myers, ¶ 45; Bauer, ¶ 118.) Myers comprises a breast shield, breast flange, and a vacuum driven with by a battery and pump are located within the pump housing. (Myers, ¶ 47; Bauer, ¶ 118.) Unlike Khalil, the extracted breast milk flows into a discrete collection bag rather than a milk container, as illustrated in FIG. 20B. (Myers, ¶ 84; Bauer, ¶ 118.)

**FIG. 20B**

Myers discloses that total mass of the breast pump device, unfilled with milk, is only about 2.4 ounces without batteries (68 grams) or 4.2 ounces (119 grams) with batteries. (Myers, ¶ 53; Bauer, ¶ 119.)

It would have been obvious to a POSITA combine Khalil with Myers. Khalil, Myers is directed the specific endeavor of providing a hands-free, discrete breast pump that can be worn in the user's undergarments. (Bauer, ¶ 119.) There is an obvious motivation to make such a device lightweight so that it can be worn comfortably in the bra. (*Id.*)

#### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claim 4, which depends from claim 1, to the disclosure of Myers.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further in View of Myers</u>
4. The breast pump device of claim 1, wherein a total mass of the breast pump device, unfilled with milk, is less than 250 gm.	Myers discloses that the total mass of the breast pump device, unfilled with milk, is less than 250 gm (i.e., 4.2 oz., 119 grams). (Myers, ¶ 54; Bauer ¶120-126.)

4. Claim 5 of the '893 Patent is unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Baker.

Claim 5, which depends from claim 1, adds the limitation that the breast pump device makes less than 30 dB noise at maximum power and less than 25 dB at normal power, against a 20 dB ambient noise. It would have been obvious to a person of skill in the art to ensure that a device designed to be worn discretely in the user's undergarment, such as Khalil or Myers, should also be as quiet as possible. (Bauer, ¶¶ 129-130.) Similarly, Kurihara expressly discloses that it is a "silent breast-milk suction device," which a person of skill in the art would have understood as requiring a device at least as quiet claim 5's requirement of 25-30 dB against 20 dB ambient noise. (Baker, ¶ 93; Bauer, ¶ 129)

To the extent there is any doubt that such a quiet device was already known in the art, Baker resolves it. (Bauer, ¶ 127.) Baker discloses an "irrigation and aspiration device" having a noise level of 20 dB. (Baker at Abstract, ¶ 121; Bauer, ¶ 127.) Baker discloses the primary purpose of the device is for nasal irrigation and aspiration. (*Id.*) However, it was well-known in the art that the teachings of devices meant to irrigate or extract nasal mucus are applicable to breast pump applications. (Bauer, ¶ 128.) Kurihara teaches both nasal aspiration and breast pumping embodiments, with the primary difference being the replacement of a nozzle for nasal aspiration and discharge with a breast flange (Baker, ¶¶ 55, 91-92; Bauer, ¶ 128.) It therefore would have been obvious for a person of skill in the art to combine the teachings of Baker with Khalil or Khalil in combination with Kurihara.

#### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claim 5, which depends from claim 1, to the disclosure of Baker.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further in View of Baker</u>
5. The breast pump device of claim 1, wherein the breast pump device makes less than 30 dB noise at maximum power and less than 25 dB at normal power, against a 20 dB ambient noise.	Baker teaches a device that generates a noise level of about 40 db, or more narrowly about 30 db, or more narrowly about 20 db or less, which is less than 30 dB noise at maximum power and less than 35 dB at normal power, against a 20 dB ambient noise. (Baker, ¶ 121; Bauer ¶ 131-169.)

5. Claims 6 and 28 of the '893 Patent are unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Hu.

Claim 6, which depends from claim 1, adds the limitation that the breast shield or flange be “substantially rigid.” Claim 28, which also depends from claim 1, adds that the power source is a rechargeable battery. Both were obvious design choices well-known to persons of skill in the art. (Bauer, ¶¶ 137-154.) A substantially rigid breast flange is advantageous to help keep the device in place when worn, to facilitate cleaning, and to increase durability. (Bauer, ¶ 146.) A rechargeable battery helps decrease battery waste and avoids the need for a user-accessible battery compartment. (Bauer, ¶ 152.)

To avoid all doubt that substantially rigid breast shields or flanges and rechargeable batteries were well-known in the relevant art, these features are expressly disclosed in Hu (Bauer, ¶¶ 137-154.) As shown in FIG. 1, Hu discloses a compact breast pump device:

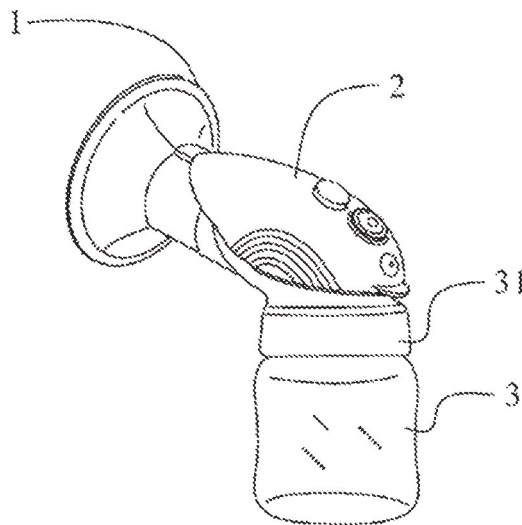


FIG. 1

Like the '893 Patent, Hu discloses a compact breast pump device with a breast flange 1, housing 2 having a pump mechanism, and container 3. (Bauer, ¶¶ 138-139.) The pump mechanism is within housing 2. Hu discloses that the breast shield is substantially rigid, being made of “hard plastic.” (Hu, ¶ 34, FIG. 1; Bauer, ¶ 140.) Hu also teaches having a rechargeable battery and an integrated circuit board. (Hu, ¶ 30; Bauer, ¶ 142.)



Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claims 6 and 28, which depend from claim 1, to the disclosure of Hu.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further in View of Hu</u>
6. The breast pump device of claim 1, wherein the breast shield is substantially rigid.	<p>Hu discloses that the breast shield is substantially rigid. (Hu, ¶ 34 (“The inner cover 11 and the outer cover 12 and the connecting piece are all made of food grade hard plastic. . .”), FIG. 1.; Bauer ¶ 144-148)</p> <p style="text-align: center;">FIG. 1</p>
28. The breast pump device of claim 1, wherein the battery is a rechargeable battery,	Hu discloses that the battery in a breast pump device can be a rechargeable battery. (Hu, ¶ 30; Bauer ¶ 149-154.)

6. Claim 12 of the '893 Patent is unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Schlensog.

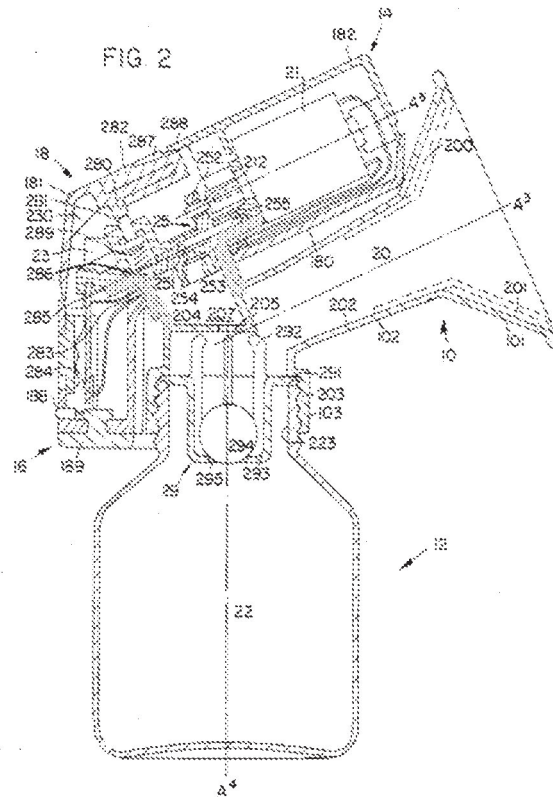
Claim 12, which depends from claim 1, adds the limitation that the housing is configured to “slide” onto the breast shield, when the breast shield has been placed onto a breast, using “guide members.” This is another routine design choice that a person of skill in the art would have known is useful to enable the user to reliably interface the detachable breast shield with the housing. (Bauer, ¶ 159.)

To remove any doubt, this teaching was already found in another prior-art compact breast pump disclosed in Schlensog. (Bauer, ¶¶ 155-157.) In Schlensog, the housing is configured to slide onto the breast shield (or “suction bell”). (Schlensog, 4:50-55; Bauer, ¶ 157.) Each of the

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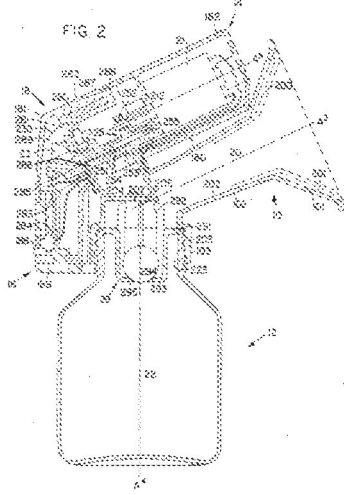
Attorney Docket No.: H1500.00001

housing and the breast shield have respective “connection piece[s],” highlighted below that are designed to interface in a sliding, press-fit engagement. (Schlensog, Fig. 2, 4:50-55; Bauer, ¶ 161.)



### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claims 12, which depends from claim 1, to the disclosure of Schlensog.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further In View of Schlensog</u>
<p>12. The breast pump device of claim 1, wherein the housing is configured to slide onto the breast shield, when the breast shield has been placed onto a breast, using guide members.</p>	<p>Schlensog discloses housing (i.e., housing 12) configured to slide onto the breast shield (i.e., suction bell 10), when the breast shield has been placed onto a breast using guide members (i.e., connection piece 283 (highlighted in red in FIG. 2 below) / connection piece 204 (highlighted in blue in FIG. 2 below)). (Schlensog, Col. 4:50-55 (“The lower portion 180 has an approximately cylindrical attachment connection piece 283 which is mounted so that it fits tightly on the connection piece 204 which, for its part, is pre-formed on the suction bell 10 . . .”). (Bauer ¶ 158-164.)</p> 

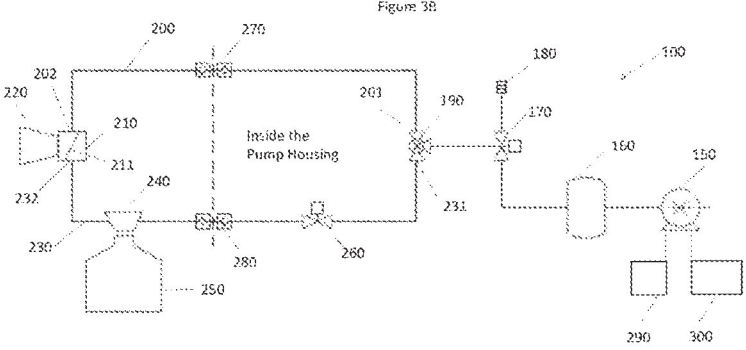
7. Claim 13 of the '893 Patent is unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Miller.

Claim 13, which depends from claim 1, adds the limitation “wherein the breast pump device includes only the breast shield and the milk container that are directly removable from the housing in normal use or normal dis-assembly.” Providing a milk container that can be removed from the housing and cleaned is an obvious design choice that a person of skill in the art would have been motivated to include to ensure sanitary handling of the milk and ease of use. (Bauer, ¶ 169.) To remove all doubt, Miller is another prior art breast pumping system. Miller expressly discloses that the breast shield and the milk container can be directly removable from the housing in normal use or normal disassembly, such as for cleaning.



### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claim 13, which depends from claim 1, to the disclosure of Miller.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further in View of Miller</u>
<p>13. The breast pump device of claim 1, wherein the breast pump device includes only the breast shield and the milk container that are directly removable from the housing in normal use or normal dis-assembly.</p>	<p>Miller teaches that the breast shield (i.e., breast shield 220) and the milk container (i.e., milk bottle 250) can be directly removable from the housing in normal use or normal disassembly using connectors 270 and 280 (i.e., for cleaning). (Miller, ¶ 0029 (“This allows the breast shield 220 and the milk bottle 250 to be disconnected from the rest of the device for cleaning. In a preferred embodiment, the remainder of the device 100 that is disconnected is enclosed in a pump housing (not shown) for convenience.”), Figure 3B.) (Bauer ¶ 168-173).</p> 

8. Claim 22 of the '893 Patent is unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Guthrie.

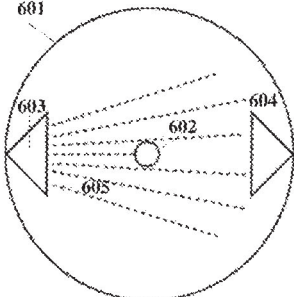
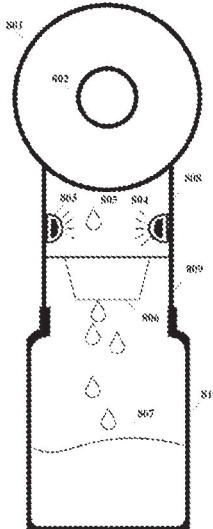
Claim 13, which depends from claim 1, adds the limitation that “a top of the milk container includes an optically clear region that is aligned below one or more light emitters positioned in a base of the housing.” The purpose of the light emitters is to better enable the wearer to assess the liquid level in the milk container, which would have been a well-known routine design choice for a person of skill in the art. (Bauer, ¶ 179.)

For example, Khalil teaches that the top of milk container includes an optically clear region that permits milk level sensing. (Khalil, ¶ 69; Bauer, ¶ 181.) Another prior art breast pump device, Guthrie, expressly teaches the use of light emitters to assist

in detecting the presence of milk. (Guthrie, ¶ 63, FIG. 6A; Bauer, ¶ 182.) Guthrie also depicts the emitters placed at the base of the housing. (Guthrie, FIG. 8; Bauer, ¶ 182.) Thus, it would have been obvious to provide light emitters through an optically clear region of a milk container was an obvious design choice.

### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitation of claim 22, which depends from claim 1, to the disclosure of Guthrie.

<u>The Claims of the '893 Patent</u>	<u>Khalil in View of Kurihara and Further in View of Guthrie</u>
<p>22. The breast pump device of claim 1, wherein a top of the milk container includes an optically clear region that is aligned below one or more light emitters positioned in a base of the housing.</p>	<p>Khalil discloses that the milk container (i.e., milk container 7') contains an optically clear region that permits milk level sensing. (Khalil, ¶ 69 (“The milk collection container 7' is either transparent or partially transparent in its entirety or it has a transparent or partially transparent window in the area of the scale 73.”).)</p> <p>Guthrie teaches the use of light emitters (i.e., emitter 603) to assist in detecting the presence of milk. (Guthrie, ¶ 63, FIG. 6A.) FIG. 8 shows light emitters 803, 804 placed in the base of the housing. (<i>Id.</i>, FIG. 8.) (Bauer ¶ 178-182.)</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <p>FIG. 6A</p> <p>FIG. 8</p> </div>

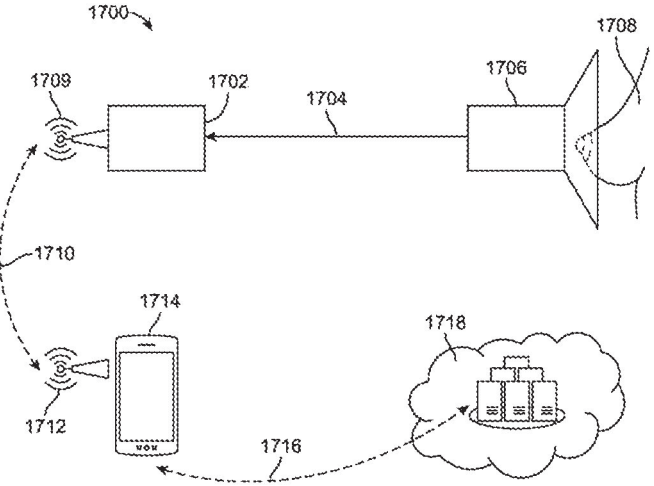
9. Claims 24, 26, and 27 of the '893 Patent are unpatentable under 35 U.S.C. 103 as being obvious in view of Khalil in combination with Kurihara and Alvarez.

Claim 24, which depends from claim 1, adds the limitation that the device includes “wireless data communications system powered by the battery.” Claim 26 adds that the “housing includes at least one of a visual or haptic indicator that indicates whether milk is flowing or not flowing into the milk container.” Claim 27 provides that the housing includes “at least one of a visual or haptic indicator that indicates if the pump is operating correctly to pump milk, based on whether a quantity or a height of liquid in the milk container above a base of the milk container is increasing above a threshold rate of increase.” Each of these were design choices already known to persons of skill in the art at the time of the '893 Patent.

Each of the limitations of claims 24, 26 and 27 were present in another prior art breastmilk pumping device, Alvarez. (Alvarez; Bauer, ¶¶ 196-202.) Alvarez teaches the use of a battery-powered wireless data communication system with the pumping device. (Alvarez, ¶¶ 78, 107, FIG. 17; Bauer, ¶ 197.) It also teaches the use of sensors and the visual display of the information gathered by those sensors to indicate both whether milk is flowing into the container. (Bauer, ¶ 200.) For example, it suggests using colored lights to convey such information. (Alvarez, ¶¶ 97, 111; Bauer, ¶ 202.) Finally, a camera is provided in Alvarez to “obtain an image of the milk in the reservoir and analyze it for quantity. . . .” (*Id.*) A person of skill in the art at the time of the '893 Patent would have appreciated the advantages of providing ready feedback to the wearer regarding whether milk was flowing into the container. (Bauer, ¶ 202.) Such a person would have been motivated to combine Alvarez with Khalil and Kurihara. (*Id.*)

#### Claim Chart

As discussed above, Khalil alone or Khalil in combination with Kurihara teaches at least the limitations of claim 1. The claim chart below maps the additional limitations of claims 24, 26, and 27, which depend from claim 1, to the disclosure of Alvarez.

The Claims of the '893 Patent	Khalil in View of Kurihara and Further in View of Alvarez
<p>24. The breast pump device of claim 1, wherein the housing includes a wireless data communications system powered by the battery.</p>	<p>Alvarez teaches that the housing includes a wireless data communications system (i.e., including wireless communication transmitter 1709 which are received by wireless communication receiver 1712) such as seen in FIG. 17. (Alvarez, ¶¶ 78, 107, FIG. 17.) (Bauer ¶¶ 195-198.)</p>  <p style="text-align: center;">FIG. 17</p>
<p>26. The breast pump device of claim 1, wherein the housing includes at least one of a visual or haptic indicator that indicates whether milk is flowing or not flowing into the milk container.</p>	<p>Khalil teaches that a portion of the milk container is transparent so the level of milk can be monitored such as by scale 73 shown in FIG. 10 (Khalil, ¶ 69, FIG. 10.) Khalil also has other control on the housing as seen in FIG. 9.</p> <p>Alvarez teaches the use of visual indicators to indicate whether milk is flowing or not flowing into the milk container, such as through the display of sensor information output by beam break sensor 477. (Alvarez, ¶¶ 97, 111 (“The information can be presented in . . . one or more lights of different colors.”)) (Bauer ¶¶ 199-202.)</p> <p>A POSITA looking to improve the presentation of data on the housing of the breast pump device of Khalil would turn to the visual indicators taught by Alvarez and incorporate them into the housing of Khalil. (<i>Id.</i>)</p>



*In re* Patent of: O'Toole *et al.*

Attorney Docket No.: H1500.00001

<p>27. The breast pump device of claim 1, wherein the housing includes at least one of a visual or haptic indicator that indicates if the pump is operating correctly to pump milk, based on whether a quantity or a height of liquid in the milk container above a base of the milk container is increasing above a threshold rate of increase.</p>	<p>Khalil teaches that a portion of the milk container is transparent so the level of milk can be monitored such as by scale 73 shown in FIG. 10 (Khalil, ¶ 69, FIG. 10.) Khalil also has other control on the housing as seen in FIG. 9.</p> <p>Alvarez teaches the use of visual indicators to indicate whether milk is flowing or not flowing into the milk container, such as through the display of sensor information output by beam break sensor 477. (Alvarez, ¶¶ 97, 111 (“The information can be presented in . . . one or more lights of different colors.”) Alvarez also teaches the use of “a camera in the pump control unit 465 may be used to obtain an image of the milk in the reservoir and analyze it for quantity or other characteristics.” (<i>Id.</i>, ¶ 101.) (Bauer, ¶¶ 199-202.)</p> <p>A POSITA looking to improve the presentation of data on the housing of the breast pump device of Khalil including whether the pump is operating correctly to pump milk would turn to the teachings of Alvarez, including the visual indicators that indicate pump performance and incorporate them into the housing of Khalil. (<i>Id.</i>)</p>
--	--

## **V. CONCLUSION**

In view of the above, reexamination of claims 1-28 of U.S. Patent No. 11,357,893 is requested.

The Director is hereby authorized to charge any fees which may be required by this paper to Deposit Account No. 50-5394, referencing docket no. H1500.00001.

Dated: February 8, 2024

Respectfully submitted,

By \_\_\_/Liang Huang/\_\_\_\_\_

*In re* Patent of: O'Toole *et al.*

Attorney Docket No.: H1500.00001

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## **EXHIBIT E**



**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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SHENZHEN ROOT TECHNOLOGY CO., LTD.,

Petitioner

v.

CHIARO TECHNOLOGY,

Patent Owner.

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IPR2024-00953

U.S. Patent No. 11,413,380

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**PETITION FOR *INTER PARTES* REVIEW  
OF U.S. PATENT NO. 11,413,380**

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Patent Trial and Appeal Board  
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            a. 1[pre]: A breast pump device comprising: ..... 30

            b. 1[a]: a self-contained, in-bra wearable device  
                comprising: ..... 30

            c. 1[b]: a pump housing that includes: ..... 30

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### EXHIBIT LIST

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1002	File History of Application 17/203,327
1003	File History of Application 17/181,057 as of May 29, 2024
1004	File History of Application 16/009,547
1005	Declaration of Ryan Bauer in Support of Petition (“ <i>Bauer</i> ”)
1006	Ryan Bauer curriculum vitae
1007	Chang, U.S. Patent Application Publication 2018/0333523
1008	Weber, U.S. Patent Application Publication 2012/0277728
1009	Guthrie, U.S. Patent Application Publication 2016/0082166
1010	Khalil, U.S. Patent Application Publication 2013/0023821
1011	Pollen, U.S. Application Publication 2015/0217033
1012	Tack, U.S. Application Publication 2012/0116299
1013	Hu, U.S. Application Publication 2015/0157775
1014	Myers, PCT Publication WO 2002/102437
1015	Myers, PCT Publication WO 2008/137678
1016	Docket of <i>Shenzhen Root Technology Co., Ltd., v. Chiaro Technology, Ltd.</i> , Case No. 23-cv-631-KKE (W.D. Washington), as of May 31, 2024.

**LISTING OF CHALLENGED CLAIMS**

<b>Element</b>	<b>Claim Limitations</b>
<b>Claim 1</b>	
1[pre]	A breast pump device comprising:
1[a]	a self-contained, in-bra wearable device comprising:
1[b]	a pump housing that includes:
1[b][i]	a rechargeable battery,
1[b][ii]	a power charging circuit for controlling charging of the rechargeable battery,
1[b][iii]	control electronics powered by the rechargeable battery,
1[b][iv]	a pump powered by the rechargeable battery and configured to generate negative air pressure,
1[b][v]	a Universal Serial Bus (USB) charging socket for transferring power to the power charging circuit and the rechargeable battery, and
1[b][vi]	a recess or cavity that defines a pumping chamber;
1[c]	a breast shield made up of a breast flange and a nipple tunnel;
1[d]	a milk container that is configured to be attached to and removed from the pump housing; and
1[e]	a diaphragm that is configured to prevent milk from reaching the pump, the diaphragm being seated against a diaphragm housing that is fixed to a recessed surface of the pump housing, and the diaphragm being a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.

<b>Claim 2</b>	
2	The breast pump device of claim 1, wherein the breast shield is configured to rotate smoothly around a nipple inserted into the nipple tunnel to provide a correct positioning of the breast shield onto a breast.
<b>Claim 3</b>	
3	The breast pump device of claim 1, wherein the breast shield is a one piece item that in use presents a single continuous surface to a nipple and a breast.
<b>Claim 4</b>	
4[a]	The breast pump device of claim 1, wherein the breast shield has a top and bottom when positioned upright for normal use, and
4[b]	wherein the breast shield is generally symmetrical about a center-line running from the top to the bottom of the breast shield when positioned upright for normal use.
<b>Claim 5</b>	
5	The breast pump device of claim 1, wherein the breast shield is configured to slide in and out from the pump housing, together with the diaphragm that prevents milk from reaching the pump.
<b>Claim 6</b>	
6	The breast pump device of claim 1, wherein the breast pump device includes only the breast shield and the milk container that are directly removable from the pump housing in normal use or normal dis-assembly.
<b>Claim 7</b>	
7	The breast pump device of claim 1, wherein the diaphragm is substantially circular and the diaphragm housing is substantially circular.

<b>Claim 8</b>	
8	The breast pump device of claim 1, wherein the milk container is substantially rigid.
<b>Claim 9</b>	
9	The breast pump device of claim 1, wherein the milk container is configured to attach to a lower part of the pump housing and to form a flat bottomed base for the breast pump device.
<b>Claim 10</b>	
10	The breast pump device of claim 1, wherein the milk container has a surface shaped to continue a curved shape of the pump housing so that the breast pump device can be held comfortably inside a bra.
<b>Claim 11</b>	
11	The breast pump device of claim 1, wherein the milk container is attachable to the pump housing with a mechanical or magnetic mechanism that releasably attaches or latches when the milk container is sufficiently pressed on to the pump housing with a single push action.
<b>Claim 12</b>	
12	The breast pump device of claim 1, wherein the nipple tunnel includes on a lower surface of the nipple tunnel an opening through which expressed milk flows under gravity into the milk container.
<b>Claim 13</b>	
13	The breast pump device of claim 1, wherein the diaphragm defines a milk-flow side chamber on one side of the diaphragm and an air-side chamber on the other side of the diaphragm.

<b>Claim 14</b>	
14	The breast pump device of claim 1, wherein the diaphragm is configured to self-seal under negative pressure around its outer edge, to form a watertight and airtight seal around the recess or cavity in the pump housing.
<b>Claim 15</b>	
15[a]	The breast pump device of claim 1, wherein the diaphragm housing is a first diaphragm housing, and
15[b]	wherein the breast pump device further comprises a second diaphragm housing attached to the nipple tunnel and configured to define a milk-flow side chamber, the diaphragm being configured to be positioned between the first diaphragm housing and the second diaphragm housing.
<b>Claim 16</b>	
16	The breast pump device of claim 15, wherein the diaphragm is configured to be releasably secured around an edge of the second diaphragm housing.
<b>Claim 17</b>	
17	The breast pump device of claim 15, wherein the second diaphragm housing is positioned, when the breast pump device is upright, over a top surface of the nipple tunnel.
<b>Claim 18</b>	
18	The breast pump device of claim 15, wherein the second diaphragm housing includes an air hole to transfer negative air pressure to the nipple tunnel.
<b>Claim 19</b>	
19	The breast pump device of claim 15, wherein the diaphragm is a flexible and generally circular diaphragm and the second diaphragm housing has a corresponding generally circular shape.



<b>Claim 20</b>	
20	The breast pump device of claim 15, wherein the second diaphragm housing is an integral part of the breast shield.
<b>Claim 21</b>	
21	The breast pump device of claim 15, wherein the diaphragm is configured to be attached around an edge of the second diaphragm housing.
<b>Claim 22</b>	
22	The breast pump device of claim 15, wherein the diaphragm is configured to seal, self-seal, self energizing seal or interference fit seal against the first diaphragm housing.
<b>Claim 23</b>	
23	The breast pump device of claim 1, wherein the diaphragm is a flexible and generally circular diaphragm.
<b>Claim 24</b>	
24	The breast pump device of claim 1, wherein the diaphragm is a flexible and generally circular diaphragm that, in a relaxed state, includes an inner raised area and a concentric outer raised area.
<b>Claim 25</b>	
25	The breast pump device of claim 1, wherein the milk container is configured to be pressed or pushed into engagement with the pump housing.

<b>Claim 26</b>	
26	The breast pump device of claim 1, wherein the self-contained, in-bra wearable device is configured so that expressed milk flows under gravity through an opening in the nipple tunnel and into the milk container through a duck-bill valve that stays sealed when there is negative air pressure being applied by the pump to ensure that negative air pressure is not applied to the milk container.
<b>Claim 27</b>	
27	The breast pump device of claim 1, wherein the milk container comprises a curved surface that includes a flat area that serves as a base for the milk container.
<b>Claim 28</b>	
28	The breast pump device of claim 1, wherein the milk container has a curved surface configured to enable the breast pump device to be held comfortably in a bra.
<b>Claim 29</b>	
29[pre]	A breast pump device that is configured as a self-contained, in-bra wearable device, the breast pump device comprising:
29[a]	a self-contained, in-bra wearable device comprising:
29[b]	a housing that includes:
29[b][i]	a rechargeable battery,
29[b][ii]	a power charging circuit for controlling charging of the rechargeable battery,
29[b][iii]	control electronics powered by the rechargeable battery,
29[b][iv]	a pump powered by the rechargeable battery and configured to generate negative air pressure, and

29[b][v]	a Universal Serial Bus (USB) charging socket for transferring power to the power charging circuit and the rechargeable battery;
29[c]	a breast shield made up of a breast flange and a nipple tunnel;
29[d]	a milk container that is configured to be attached to and removed from the housing; and
29[e]	a membrane that is configured to define a pumping chamber at least in part with an external surface of the housing, the membrane configured to deform in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.
<b>Claim 30</b>	
30	The breast pump device of claim 29, wherein the breast shield is configured to rotate smoothly around a nipple inserted into the nipple tunnel to provide a correct positioning of the breast shield onto a breast.
<b>Claim 31</b>	
31	The breast pump device of claim 29, wherein the breast shield is a one piece item that in use presents a single continuous surface to a nipple and a breast.
<b>Claim 32</b>	
32[a]	The breast pump device of claim 29, wherein the breast shield has a top and bottom when positioned upright for normal use, and
32[b]	wherein the breast shield is generally symmetrical about a center-line running from the top to the bottom of the breast shield when positioned upright for normal use.
<b>Claim 33</b>	
33	The breast pump device of claim 29, wherein the breast pump device includes only the breast shield and the milk container that are directly removable from the housing in normal use or normal dis-assembly.

<b>Claim 34</b>	
34	The breast pump device of claim 29, wherein the membrane is substantially circular.
<b>Claim 35</b>	
35	The breast pump device of claim 29, wherein the milk container is substantially rigid.
<b>Claim 36</b>	
36	The breast pump device of claim 29, wherein the milk container has a surface shaped to continue a curved shape of the housing so that the breast pump device can be held comfortably inside a bra.
<b>Claim 37</b>	
37	The breast pump device of claim 29, wherein the milk container is attachable to the housing with a mechanical or magnetic mechanism that releasably attaches or latches when the milk container is sufficiently pressed on to the housing with a single push action
<b>Claim 38</b>	
38	The breast pump device of claim 29, wherein the nipple tunnel includes on a lower surface of the nipple tunnel an opening through which expressed milk flows under gravity into the milk container.
<b>Claim 39</b>	
39	The breast pump device of claim 29, wherein the membrane defines a milk-flow side chamber on one side of the membrane and an air-side chamber on the other side of the membrane.
<b>Claim 40</b>	
40	The breast pump device of claim 29, wherein the membrane is configured to self-seal under negative pressure around its outer edge, to form a watertight and airtight seal around the recess or cavity in the housing.

<b>Claim 41</b>	
41	The breast pump device of claim 29, the membrane is a flexible membrane.
<b>Claim 42</b>	
42	The breast pump device of claim 29, wherein the membrane is a flexible and generally circular membrane that, in a relaxed state, includes an inner raised area and a concentric outer raised area.
<b>Claim 43</b>	
43	The breast pump device of claim 29, wherein the milk container is configured to be pressed or pushed into engagement with the housing.
<b>Claim 44</b>	
44	The breast pump device of claim 29, wherein the self-contained, in-bra wearable device is configured so that expressed milk flows under gravity through an opening in the nipple tunnel and into the milk container through a duck-bill valve that stays sealed when there is negative air pressure being applied by the pump to ensure that negative air pressure is not applied to the milk container.
<b>Claim 45</b>	
45	The breast pump device of claim 29, wherein the milk container comprises a curved surface that includes a flat area that serves as a base for the milk container.
<b>Claim 46</b>	
46	The breast pump device of claim 29, wherein the milk container has a curved surface configured to enable the breast pump device to be held comfortably in a bra.

## **I. INTRODUCTION**

Petitioner Shenzhen Root Technology Co., Ltd., requests *inter partes* review (“IPR”) of claims 1-46 (“Challenged Claims”) of U.S. Patent 11,413,380 (EX-1001; “the ’380 patent”). Petitioner submits the declaration of Ryan Bauer (EX-1005; “*Bauer*”), an expert in the field of the ’380 patent, in support of this Petition.

## **II. GROUNDS FOR STANDING**

Petitioner certifies the ’380 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR on the grounds herein. Patent Owner Chiaro Technology (“PO”) served its answer and counterclaims alleging that Petitioner infringes the ’380 patent on August 14, 2023. Petitioner files this Petition within one year of that event.

## **III. STATEMENT OF PRECISE RELIEF REQUESTED**

Petitioner respectfully requests review and cancellation under 35 U.S.C. §311 of the Challenged Claims in view of the following references and grounds:

Prior Art
<b>U.S. Patent Application Publication 2018/0333523</b> , continuation of PCT/US/17/17112 filed February 9, 2017; prior art at least under §102(a)(2) (EX-1007; “ <i>Chang</i> ”)
<b>U.S. Patent Application Publication 2012/0277728</b> , published on November 1, 2012; prior art at least under §§102(a)(1), (a)(2) (EX-1008; “ <i>Weber</i> ”)
<b>U.S. Patent Application Publication 2016/0082166</b> , published on March 24, 2016; prior art under at least §§102(a)(1)-(a)(2) (EX-1009; “ <i>Guthrie</i> ”)
<b>U.S. Patent Application Publication 2013/0023821</b> , published on January 24, 2013; prior art at least under §§102(a)(1), (a)(2) (EX-1010; “ <i>Khalil</i> ”)

Grounds (35 U.S.C. §103)	Claims	Prior Art References
1A	1-4, 6-9, 11-16, 18-26, 29-35, 37-44	<i>Chang, Weber, Guthrie</i>
1B	5, 10-12, 17, 25-28, 36-38, 43-46	<i>Chang, Weber, Guthrie, Khalil</i>

#### IV. OVERVIEW OF THE ’380 PATENT

##### A. Specification

The ’380 patent relates to a breast pump that is wearable inside a bra. EX-1001, 3:57-62. The specification acknowledges that fully integrated in-bra breast pumps existed in the prior art, including as disclosed by U.S. Application Publication 2016/0206794 (“Makower”). *Bauer*, ¶36. The ’380 patent asserts the Makower device’s disadvantages were a collapsible bag as the milk container, a noisy and



complex pump mechanism, and limited milk capacity. The '380 patent also discusses the breast pump of U.S. Application Publication 2013/0023821 ("Khalil"). The '380 patent asserts the Khalil device's disadvantages were an annular diaphragm resulting in a large, bulky device. The '380 patent purports to overcome such disadvantages. EX-1001, 2:5-57; *Bauer*, ¶37.

The '380 patent claims are generally directed to "a self-contained, in-bra wearable" breast pump device with a housing, a pump powered by a rechargeable battery, a breast shield, a milk container, and a diaphragm (or membrane) that deforms in response to changes in air pressure caused by a pump. EX-1001, claims 1, 29; *see also Bauer*, ¶38. The specification discloses the breast shield engages with the user's breast and is connected to the milk container for collecting milk expressed by the user. *E.g.*, EX-1001, 5:40-47. The housing includes one or more pumps, as well as a rechargeable battery and control electronics. *E.g.*, *id.*, 5:47-49, 5:58-59; *see also Bauer*, ¶39. The breast shield and milk container are removably connected to the housing. *E.g.*, EX-1001, 5:58-6:3; *see also Bauer*, ¶39.

Figures 1 and 2 below show a front and rear view of the disclosed breast pump system, with housing 1, milk container 3 and breast shield 7:

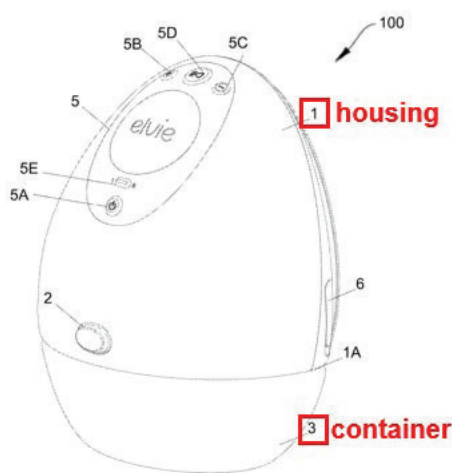


FIGURE 1

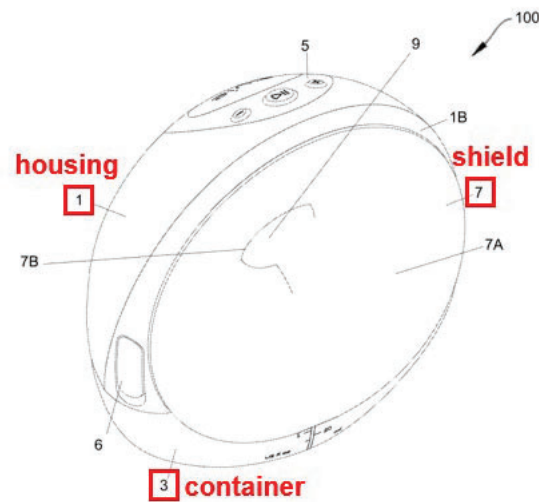


FIGURE 2

EX-1001, Figs. 1, 2 (annotated), 5:56-6:3, 6:14-21. Breast shield 7 has concave inner flange 7A which contacts the breast, and elongate nipple tunnel 9 aligned with an opening on breast shield 7 and extending from curved section 7B in breast shield 7. *Id.*, 8:62-64, 9:28-31. The nipple tunnel defines a milk-flow path from the inner surface of breast shield 7A, through nipple tunnel 9, and into milk container 3. *Id.*, 9:39-42. *Bauer*, ¶40-41.

The breast pump system includes a “diaphragm” (or “membrane” or “barrier”) for transferring negative air pressure (or suction or vacuum) from the pump to the milk-collection side (i.e., breast side) of the system. EX-1001, 10:25-29; 11:18. Figures 5 and 6 below show front and rear exploded views of the breast pump system, with housing 1, milk container 3, breast shield 7, and diaphragm 13:

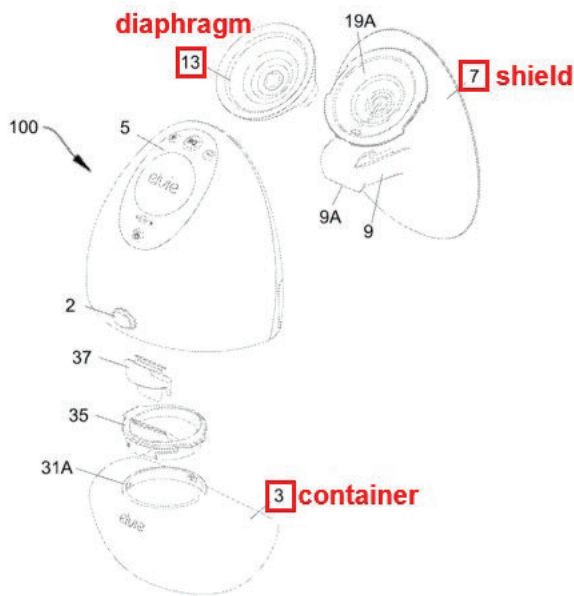


FIGURE 5

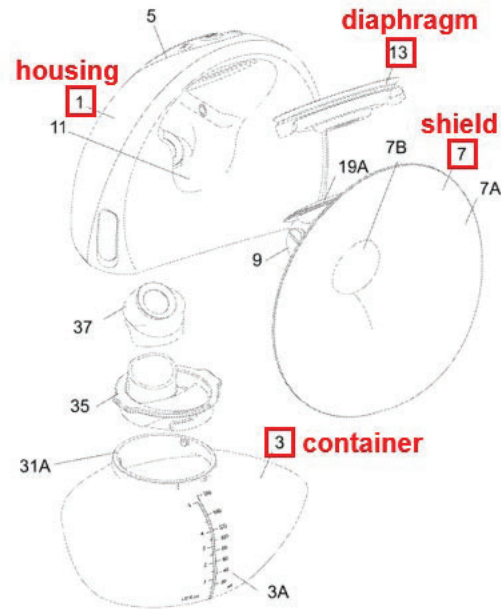


FIGURE 6

*Id.*, Figs. 5, 6 (annotated). *Bauer*, ¶42.

Diaphragm 13 is held in diaphragm housing and transfers negative pressure generated by the pump into nipple tunnel 9, which imposes a sucking action on the user's nipple. EX1001, 10:25-35, 11:19-20. The diaphragm housing has a first half (19A) integral with breast shield 7 and a second half (19B) in a recessed portion of housing 1, as shown in Figure 4 below:

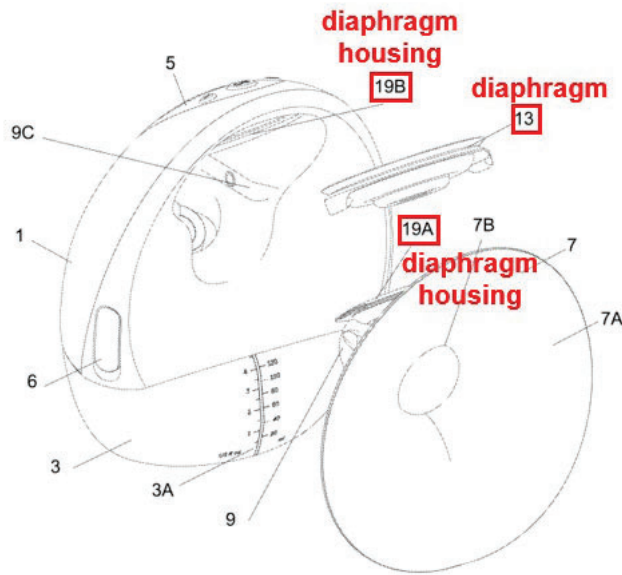


FIGURE 4

*Id.*, Fig. 4 (annotated), 11:23-27. *Bauer*, ¶43.

## B. Prosecution History

The '380 patent issued from Application 17/203,327 ("327 application"; EX-1002) filed on March 16, 2021, which is a continuation of Application 17/181,057 ("057 application"; EX-1003), which is a continuation of Application 16/009,547 ("547 application"; EX-1004). The earliest priority date on the '380 patent's face is June 15, 2017. Petitioner applies that date here because all references qualify as prior art assuming that date. Petitioner reserves the right to challenge priority in other proceedings.

The '380 patent has two similar independent claims, claims 1 and 29. These claims were allowed after multiple obviousness rejections based on the addition of limitations for structural features specifying how the diaphragm of the pump is held

in the device. As explained below, claim 1 was allowed based on the diaphragm housing being fixed to a recessed surface of the pump housing, and claim 29 was allowed based on the diaphragm (membrane) defining a pumping chamber at least in part with an external surface of the housing of the device.

During prosecution of the '327 application, the Examiner rejected originally-filed independent claim 1 as obvious over Khalil combined with other references. EX-1002, 482-484. PO subsequently amended the claim to include a “diaphragm...configured to prevent milk from reaching the pump,” where the diaphragm is “a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel,” and is “seated against a diaphragm housing that is formed around an edge of the recess or cavity in the pump housing.” *Id.*, 623. PO also added new independent claim 47, which ultimately issued as independent claim 29, and recited “a membrane that is configured to define an air pumping chamber with a surface of the housing, the membrane configured to deform in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.” *Id.*, 627-628.

During an interview, the Examiner stated claim 1 would be allowable if PO amended it to “indicat[e] that the diaphragm housing is fixed to a surface of the pump housing.” *Id.*, 655. According to the Examiner, “the configuration of the diaphragm housing 19B in [’380 Fig. 4] which is a recess in the rear surface of the housing was

unique relative to the prior art.” *Id.* Similarly, the Examiner stated pending claim 47 would be allowable if PO amended it to “clarify that the surface [of the housing] is an exterior surface of the housing.” *Id.*

After subsequent amendments, the Examiner allowed claim 1 because “Khalil fails to teach...a diaphragm housing fixed to a recessed surface of the pump housing,” and allowed pending claim 47 because “Khalil fails to teach...a membrane that forms an air pumping chamber at least in part with an external surface of the pump housing.” *Id.*, 1056, 781. The Examiner indicated Khalil taught a “membrane” (citing Khalil’s Fig. 11, element 3) that “forms an air pumping chamber with diaphragm housing members” (citing Khalil’s Fig. 11, elements 2, 4), but “these housing members are not shown to be a part of an external surface of the pump housing.” *Id.*, 781.

## **V. LEVEL OF ORDINARY SKILL**

A POSITA as of June 15, 2017 (the earliest filing date to which the ’380 patent could claim priority) would have had at least a bachelor’s degree in mechanical engineering or a similar field and at least two years of experience designing human breast pump equipment. More education could substitute for experience and vice versa. *Bauer*, ¶15-18.

## VI. CLAIM CONSTRUCTION

During prosecution of the '057 application, the Examiner construed the term “*self-contained, in-bra wearable device*” to mean “‘complete, or having all that is needed, in itself’ and is capable of being worn in a bra.” EX-1003, 2167. PO did not dispute this construction, and Petitioner applies it herein.

The other terms of the Challenged Claims should be construed according to their plain and ordinary meaning.

## VII. TECHNOLOGY BACKGROUND

Breast pumps extract milk from users’ breasts. The breast pump industry has been significantly influenced by government policies and related market forces. For example, the USA is by far the leading market for breast pumps in the world, in part because of a large number of women in the workforce and limited maternity benefits. In 2010, the enactment of the Affordable Care Act (“ACA”) revolutionized the industry by mandating health insurance plans to cover breastfeeding equipment. The ACA significantly increased demand for all types of breast pumps and accessories, which attracted new participants to the market and significantly expanded the commercial market for breast pumps. *Bauer*, ¶¶19-21.

After the ACA, consumers demanded better products through media and feedback, which increased competition among manufacturers and caused them to develop improved products to address unmet needs. One significant industry event



was the 2014 MIT Hackathon “Make The Breast Pump Not Suck.” Participants in the Hackathon sought to improve breast pumps by addressing features such as making them fashionable, discreet, hands-free and wearable, easily cleanable, “smart” to make use of data to communicate, facilitate connections to others in the community, etc. A notable example was the Willow Breast Pump, which was shown at the Consumer Electronics Show (CES) in January 2017 and garnered significant media attention as an integrated, in-bra wearable, hands-free device. Technology publication Engadget recognized it as a winner of their “Best Digital Health and Fitness Product” and “Best Wearable” awards. *Id.*, ¶22-27.

Breast pumps typically have a localized volume in which the nipple is inserted and a vacuum (or negative pressure or suction) is applied so that milk is ejected into the localized volume, the vacuum is released, and the milk is evacuated to a collection container. This cycle is repeated at frequencies designed to emulate the sucking of a nursing baby. The milk accumulates in the collection container. *Id.*, ¶28.

Major components of the pump include a breast shield that engages the breast and presents the localized volume for the nipple, a pump to generate negative pressure (i.e., vacuum or suction), and a milk collection container. A one-way valve is often used with the localized volume to minimize its size and to allow extracted milk to escape between vacuum cycles and flow to the container. *Id.*

A common arrangement in the prior art was for the breast pump to use a membrane or diaphragm to define the localized volume on one side (milk side) and to be in mechanical or fluid communication with the pump on the other side. Such a diaphragm is commonly referred to as a media separation because it keeps milk away from the pump mechanism. Many different types of pumps have been used in breast pumps to generate suction to extract milk—for example, diaphragm pump, bellows pump, piston pump, reciprocating pump, peristaltic pump. *E.g.*, EX-1011, ¶45. Breast pumps with diaphragm pumps were well known in the prior art. Examples include Weber (EX-1008), Khalil (EX-1010), and U.S. Application Publications 2012/0116299 (EX-1012) and 2015/0157775 (EX-1013). *Bauer*, ¶29-31.

Breast pumps are relatively simple electromechanical devices that can be configured in a variety of ways. The components of breast pumps can be combined and attached to each other or separated and connected by lines, hoses, or wires, as desired. In this crowded field, a POSITA knew that there is no single design or configuration that is ideal for all purposes. Rather, a POSITA knew the various combinations of components at their disposal and selected a configuration for a particular device based on desired commercial and clinical requirements—for example, weight distribution, cleanability, power consumption, anatomical variation. All four prior art references relied on in this Petition reflect this flexibility by

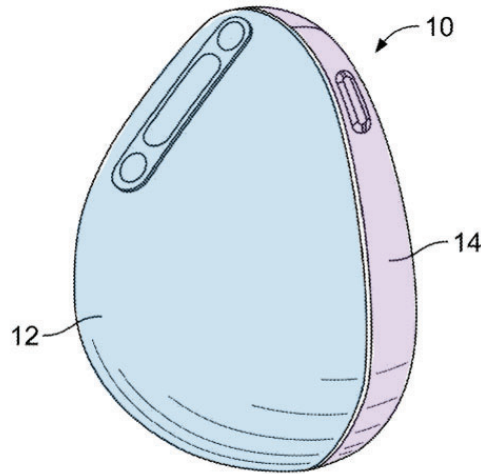
disclosing multiple configurations with various components alternatively combined and separate. *Chang*, ¶19; *Weber*, ¶¶21, 67-69, Figs. 1, 2, 6; *Guthrie*, ¶¶24, 27, 33-35, Figs. 1, 2A-2C; *Khalil*, ¶¶32, 33, 51, 66, Figs. 1, 2, 9-11; *see also Bauer*, ¶32-34.

All challenged claims of the '380 patent are directed to a “self-contained, in-bra wearable device.” Such devices, worn and held entirely in a bra, were well-known in the prior art, of which Makower, Chang, and Khalil are examples. In addition, other prior art devices, worn by a user and held mostly in a bra with a component outside the bra, were also well-known. For example, breast pumps with the milk collection container outside the bra included PCT Publications WO 2002/102437 (EX-1014) and WO 2008/137678 (EX-1015) and Guthrie. *Id.*, ¶35.

## VIII. THE ASSERTED PRIOR ART

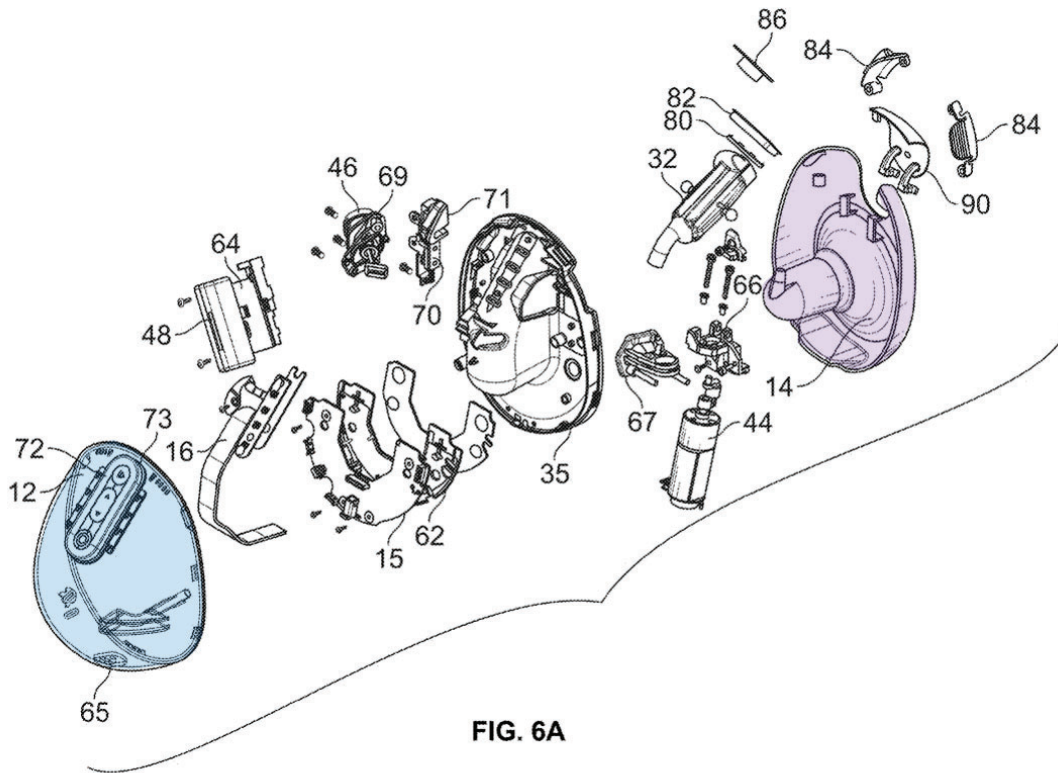
### A. Chang

Chang discloses “portable breast pump systems...for collecting milk from a breast of a nursing mother.” *Chang*, ¶1. Chang’s breast pump “is contemplated to fit comfortably and conveniently into a bra” (*id.*, ¶11) such that “the flange or skin contact member, the conduit, the driving mechanism, the external shell and the milk collection container are all contained within a cup of a brassiere” (*id.*, ¶19). As shown in Figure 1A, Chang’s breast pump 10 includes “housing or outer shell 12” (blue) and “flange 14” (purple):

**FIG. 1A**

*Id.*, Fig. 1A (annotated), ¶71. *Bauer*, ¶62-64.

The flange “is sized and shaped to engage a breast...to provide structure for sealingly engaging with breast tissue.” *Chang*, ¶71. It includes a “nipple receiving portion...contoured to more closely match the natural shape of the nipple.” *Id.*, ¶90. The shape of flange 14 is illustrated in Figure 6A below.



*Id.*, Fig. 6A (annotated); *id.*, Figs. 1, 2, 4, ¶¶71-72, 80. *Bauer*, ¶64.

In Chang, all pumping system components may be contained under the housing, between housing 12 and the flange 14. *Chang*, Fig. 6A, ¶¶72, 80. The components include “rechargeable battery” 48 for powering the system, a “system controller” circuit board, and a pump (e.g., “motors 44, 46 are further provided and controlled electronically by the system to effect manipulation of actuators (described below) operating on a conduit or flex-tube 32”). *Id.* Chang’s “pump” can be “one or more pumps and equivalents thereof known to those skilled in the art.” *Id.*, ¶68. *Bauer*, ¶66.

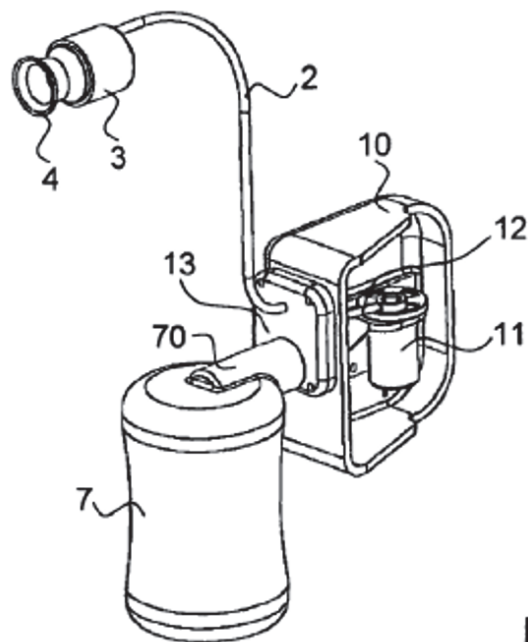
Chang's system includes a "milk collection container." *Chang*, Figs. 8, 11B, ¶¶81, 86, 99-101, 105-106. Chang's collection container may include "a one-way valve that permits milk inflow into the milk collection container but prevents milk backflow from the milk collection container to the conduit." *Id.*, ¶21. The valve may "assume a myriad of shapes and kinds" and the container may be "flexible or rigid, or disposable or reusable" (*id.*) and may be "inside or outside of the pump housing" (*id.*, ¶101). *Bauer*, ¶65.

#### **B. Weber**

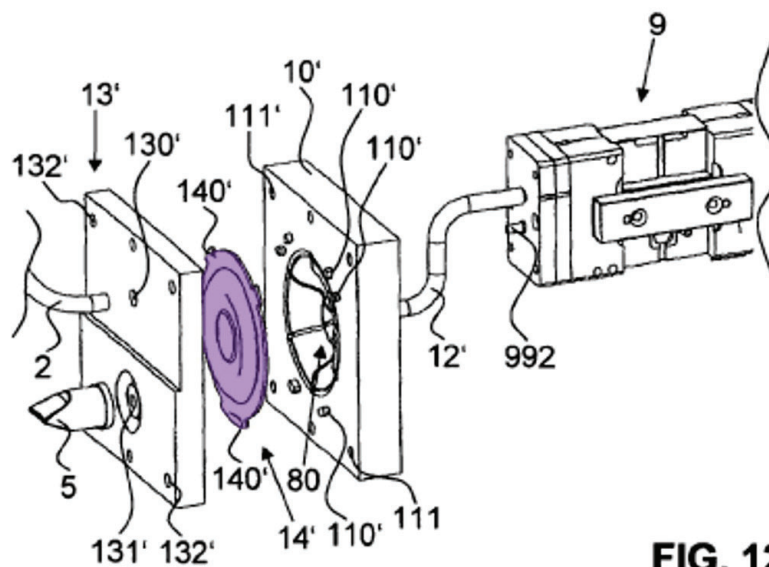
Weber discloses a "device for expressing human breast milk" having a diaphragm-type "vacuum pump," which "can be battery operated." *Weber*, ¶¶2, 70. "The breast shield can be designed to be small and can be fixed in a bra." *Id.*, ¶13.

The combination of the three elements a vacuum-transmitting and milk-conducting line, a pump chamber diaphragm with its triple function, and the breast shield that is of small design and avoids dead volumes results in a device that can be designed to be small and quiet, and furthermore is optimally suitable for any type of use, in particular "hands-free" use.

*Id.*, ¶47. *Bauer*, ¶73-74. Figure 6 below shows an embodiment:

**FIG. 6**

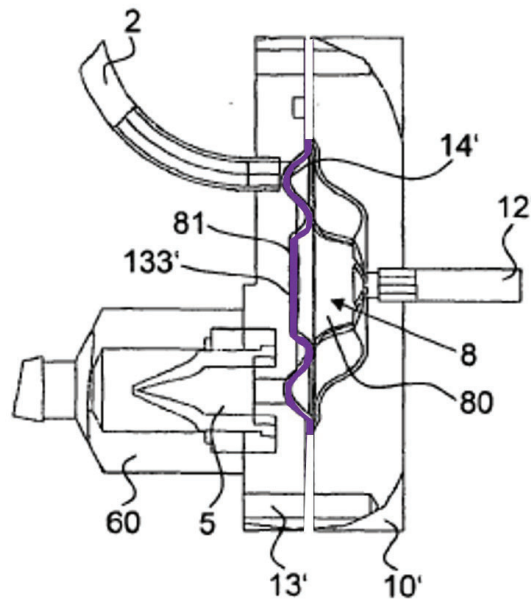
In Weber, diaphragm 14' is driven by and connected to vacuum pump 9 via a vacuum line 12:

**FIG. 12**

*Weber*, Fig. 12 (annotated), ¶98; *Bauer*, ¶75.



The diaphragm rests in a recessed part of base plate 10' which “may be part of a vacuum pump housing” and is “held in an unambiguous position in the chamber 8” (*Weber*, ¶97):



**FIG. 13**

*Id.*, Fig. 13 (annotated), ¶¶95-97. The diaphragm “serves as a partition wall between the breast-shield-side part 81, which is filled with milk during use, and the...pump-side part 80, which has a negative pressure and is filled with air.” *Id.*, ¶96. The diaphragm “is moved cyclically” which “transports the milk from the breast shield 4 [(connected via line 2)] through the breast-shield-side part 81 into the milk collecting container 7 [(connected via nonreturn valve 5)].” *Id.*; see *id.*, ¶76. *Bauer*, ¶75-76.

The elements of Weber’s device “can be combined with one another individually or in groups in order to form further embodiments.” *Weber*, ¶111. For

example, Figures 12 and 13 show a connection to the breast shield via “vacuum-transmitting line” 2, but Weber also states the breast shield can be connected directly to the pump housing, where “the vacuum pump for the breast shield is connected directly to the first port of the chamber.” *Id.*, ¶¶21, 99. Furthermore, Weber’s milk collecting container 7 “may...be fastened directly to the vacuum pump.” *Id.*, ¶69; *see* Fig. 6 (above). *Bauer*, ¶77.

Weber discloses its embodiments “can also be used in known breast pumps.” *Weber*, ¶110; *Bauer*, ¶78.

### **C. Guthrie**

Guthrie discloses a “smart breast pump system” that has “milk capture and collection elements” with an “integral smart sensor and internal pump 207,” which may be a “vacuum pump.” *Guthrie*, ¶35; *Bauer*, ¶80.

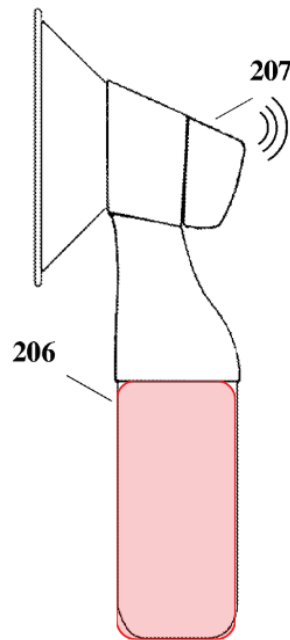
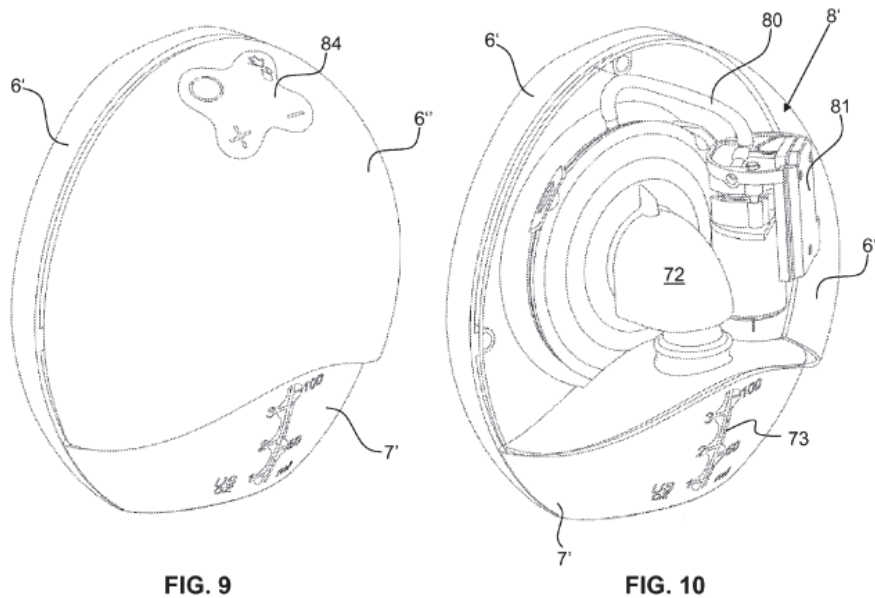


FIG. 2C

*Guthrie*, Fig. 2C. Guthrie uses rechargeable batteries to power its pump, and its batteries can be charged via a USB cable. *Id.*, ¶40. Guthrie’s milk container shown above (in pink) is below the pump housing and has a flat base, allowing it to “stably stand whether or not it contains milk, ensuring that bottle 304 does not tip or spill milk that has been collected.” *Id.*, ¶37. *Bauer*, ¶80-81.

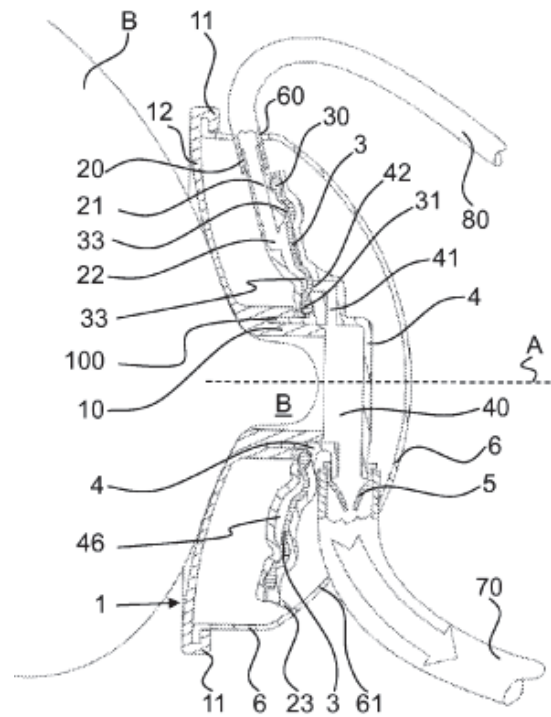
#### **D. Khalil**

Khalil discloses an integrated breast pump, referred to as a “breastshield unit.” *Khalil*, Abstract. The breastshield unit is “designed as a hands-free unit” that can be worn “under” or “in” a bra (*id.*, ¶¶32, 70):



*Id.*, Figs. 9, 10, Abstract, ¶66. The unit includes a shell (cover 6'' and shell ring 6'), milk container 7' and integrated pump unit 8', including vacuum pump 81. *Id.*, ¶¶66-67. The pump "is preferably a diaphragm vacuum pump of a known type, which is operated by means of an electric motor." *Id.*, ¶67. The pump may be powered by an integrated "power source." *Id.* Milk collection container 7' is "arranged in the lower area adjoining the cover (6'')" and uses locking lug 71, "integrally formed" on it, to "engage in a corresponding recess...of the shell ring (6')" as shown below. *Id.*, ¶69. *Bauer*, ¶¶67-71.

The breastshield unit includes "breast interface 1 for placing on a human mother's breast." *Khalil*, ¶¶48, 66. The breast interface is "slightly funnel-shaped" and includes a "receiving part" (stub 10) where the user's "nipple B protrudes into":

**FIG. 4**

*Id.*, ¶60, Fig. 4. *Bauer*, ¶72.

Khalil's breastshield may include "membrane 3" located between "membrane housing parts 2, 4," which are attached to the shell via cover ring 6':

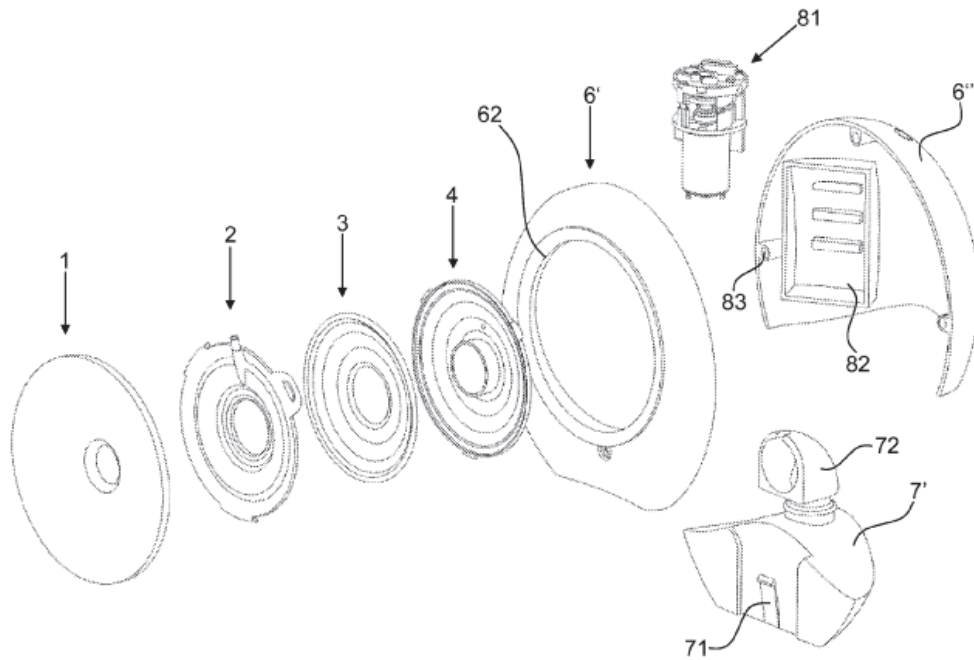


FIG. 11

*Khalil*, Fig. 11, ¶¶66-67, ¶¶53-58.

## IX. DETAILED EXPLANATION OF GROUNDS

### A. Claims

The '380 patent has two independent claims, claims 1 and 29, which are very similar to each other. Claims 2-28 depend from claim 1 and claims 30-46 depend from claim 29. Each dependent claim that depends from claim 29 has a counterpart that depends from claim 1.

### B. Ground 1A: Obviousness Based On Chang, Weber, Guthrie (Claims 1-4, 6-9, 11-16, 18-26, 29-35, 37-44)

#### 1. Motivation To Combine Chang, Weber, Guthrie

A POSITA would have been motivated to combine Chang, Weber, and Guthrie. *Bauer*, ¶¶84-98.

A POSITA would have been motivated to use Weber's pump in Chang's breast pump device. Chang discloses a preferred embodiment having a pump that generates suction by cyclical compression and decompression of a conduit or flex-tube. *E.g.*, *Chang*, ¶¶22, 25, 28, 84-86. Chang states that its teachings are not limited to that kind of pump: "reference to 'the pump' includes reference to ***one or more pumps and equivalents thereof known to those skilled in the art...***" *Id.*, ¶68.<sup>1</sup> Chang states, "Although both portions 32S and 32L [of the flex-tube] are shown as tubular portions, the present disclosure is not limited to such, as one or both portions could be shaped otherwise." *Id.* ¶79. Accordingly, Chang affirmatively teaches that its breast pump device can be used with pumps of known design that generate suction using a flexible member having a non-tubular shape. *Bauer*, ¶85.

A POSITA would have known that an example of a pump of known design that would work with Chang's breast pump is a diaphragm pump having a diaphragm that deforms in response to changes in air pressure caused by the pump to generate suction. As discussed in the Technology Background section above, such diaphragm pumps were well-known in the prior art. Weber discloses such a diaphragm pump. *See, e.g.*, *Weber*, ¶22; *see also Bauer*, ¶86-87.

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<sup>1</sup> All emphases are added unless otherwise specified.



Weber discloses embodiments of a breast pump having a separate breast shield, pump, and milk container but also states, “The elements of the above-described embodiments can be combined with one another individually or in groups in order to form further embodiments.” *Weber*, ¶111. For example, Weber discloses that the breast shield and pump may be connected: “In another embodiment, the vacuum pump for the breast shield is connected directly to the first port of the [vacuum-generating] chamber” of the pump. *Id.*, ¶21. Weber also discloses an embodiment in which the milk container is “fastened directly to the vacuum pump.” *Id.*, ¶69, Fig. 6. *Bauer*, ¶88.

As discussed in the Technology Background section above, Chang similarly teaches that having integrated components or separate components are alternatives that are a matter of choice for the designer. *Id.*, ¶89.

Significantly, Weber teaches that its pump “can also be used in known breast pumps. That is to say, for example, in systems in which the suction line between the vacuum pump and breast shield is separate from the flow of milk.” *Weber*, ¶110. Accordingly, Weber affirmatively teaches that its pump can be used in breast pump systems of known design. *Bauer*, ¶87.

A POSITA would have known that breast pumps of known design suitable for use with Weber’s pump design would have included integrated in-bra breast pumps. *Id.*, ¶90. For example, Weber discloses as examples of prior art the “hands-free”

breast pumps of WO 02/102437 and WO 2008/137678, about which Weber states, “the breast shield is in each case integrated into a pump housing” (*Weber*, ¶6) and worn in a bra. *Bauer*, ¶90. Weber further states that its design “results in a device that can be designed to be small and quiet, and furthermore is optimally suitable for any type of use, in particular ‘hands-free’ use.” *Weber*, ¶47. Chang is an example of a known breast pump that a POSITA would have been motivated to use with Weber’s pump design. *Bauer*, ¶90.

The foregoing shows that Chang and Weber provided motivation to a POSITA to use the known diaphragm pump of Weber in the known breast pump of Chang. *Id.*, ¶89-91; *KSR Int’l Co., v. Teleflex, Inc.*, 550 U.S. 398, 416-17 (2007) (obvious to combine familiar elements according to known methods to yield predictable results and to improve similar devices in the same way); *id.* at 416 (“[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”); *id.* at 417 (“If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability.”).

A POSITA also would have been motivated to combine the breast pump of Chang with the milk container of Weber. *Bauer*, ¶88. Chang discloses a flexible milk collection container that is located within the housing and is configured to be attached to and removed from the flex-tube so that milk that is pumped by the flex

tube flows into the container. *Chang*, ¶¶102-107. But *Chang* also teaches, “It is to be recognized that the collection or container assembly can be placed in alternative locations as well.” *Id.*, ¶105. And *Chang* also discloses that its invention can be used with a milk container that “can be flexible or rigid, or disposable or reusable.” *Id.*, ¶21. These teachings would have motivated a POSITA to use a rigid container in an alternative location such as below the pump housing. *Weber* is an example of a prior art breast pump having a rigid container located below the pump housing. *Bauer*, ¶88; *KSR*, 550 U.S. at 416-17.

A POSITA also would have been motivated to combine the breast pump device of *Chang* with the power charging circuit of *Guthrie*. *Bauer*, ¶92-97. *Chang* discloses that its breast pump can be powered by a rechargeable battery that “is configured to be plugged into a power source for charging.” *Chang*, ¶72. A POSITA would have understood that a device with a rechargeable battery has a power charging circuit for controlling charging of the battery. *Bauer*, ¶92. *Chang* does not expressly refer to such a power charging circuit, but they were well-known in the prior art. *Id.*

Rechargeable batteries are often charged using household electricity, which in the U.S. is alternating current and 120 volts. *Id.*, ¶93. Rechargeable batteries for devices such as breast pumps operate using direct current and low voltages (e.g., 3 volts). *Id.* Therefore, household electricity must be converted using electrical

components such as a rectifier (to convert AC to DC) and a transformer (to step down voltage) to work with the rechargeable battery. *Id.* Such electrical components are often contained in a “transformer brick” or block-shaped plug that have been ubiquitous for electrically-powered consumer devices for decades, but such components can be located in the devices themselves instead. *Id.*

After such conversion of electricity, it must be further modified to account for additional battery-related factors such as the battery’s chemistry (e.g., Nickel-Cadmium, Nickel Metal-Hydride, and Lithium-Ion) and desired parameters such as charging time, temperature, and safety. *Id.*, ¶94 Such modifications are typically carried out by a power charging circuit that is embodied by electrical components on one or more printed circuit boards inside the device. *Id.* Without such a power charging circuit, the battery would not charge, could be damaged, and could catch fire or explode. *Id.*

Chang does not expressly describe the power charging circuitry needed for controlling charging of its rechargeable battery, so a POSITA would have looked elsewhere for information about a power charging circuit. Guthrie discloses a breast pump system having a power charging circuit for controlling charging of a rechargeable battery. *Id.*, ¶95.

Guthrie discloses an external cable that connects to the breast pump device to “*charge batteries associated with any of the electrical components* of the milk

capture and collection element....” *Guthrie*, ¶40. Guthrie further discloses a charging cable having a USB-A style adapter and that can be plugged into a home electrical outlet:

[C]harging cable 404 includes a USB-A style adapter 405 that may be connected to a power source for *charging batteries associated with any of the electrical components* of the milk capture and collection element 101, shown in FIG. 1. Accordingly, adapter 405 may connect directly or indirectly to a source of power, such as a standard home electrical outlet, in order to charge the *electrical components* of the milk capture and collection element 101 shown in FIG. 1. Examples of indirect connections between adapter 405 and a source of power include connections to power adapters, transformers, or other devices meant to output power at a level appropriate for the electrical components of the milk capture and collection element 101 and the smart breast pump system disclosed herein.

*Id.* As discussed above, a POSITA would have known that such electrical components include a power charging control circuit so that the electricity provided by the charging cable is modified to account for battery-related factors such as the battery’s chemistry and desired parameters such as charging time, temperature, and safety. *Bauer*, ¶96.

The foregoing shows that Chang and Guthrie provided teaching, suggestion, and motivation to a POSITA to use the power charging circuit of Guthrie to control charging of the rechargeable battery in the breast pump of Chang. *Bauer*, ¶97; *KSR*,

550 U.S. at 416-17 (obvious to combine familiar elements according to known methods to yield predictable results and to improve similar devices in the same way); *see also id.* at 421 (obvious to try “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions” and a POSITA has “known options within his or her technical grasp”).

A POSITA also would have been motivated to combine the breast pump of Chang with the milk container of Guthrie. *Bauer*, ¶98. Chang discloses a flexible milk collection container that is located within the housing and is configured to be attached to and removed from the flex-tube so that milk that is pumped by the flex tube flows into the container. *Chang*, ¶¶102-107. But Chang also teaches, “It is to be recognized that the collection or container assembly can be placed in alternative locations as well.” *Id.*, ¶105. And Chang also discloses that its invention can be used with a milk container that “can be flexible or rigid, or disposable or reusable.” *Id.*, ¶21. These teachings would have motivated a POSITA to use a rigid container in an alternative location such as below the pump housing. Guthrie is an example of a prior art breast pump having a rigid container located below the pump housing. *Bauer*, ¶98; *KSR*, 550 U.S. at 416-17.

## 2. Claim 1

### a. 1[pre]: A breast pump device comprising:

If the preamble is limiting, Chang discloses it. *See Bauer*, ¶99. Chang discloses “portable breast pump systems and methods for collecting milk from a breast of a nursing mother.” *Chang*, ¶1, Abstract; *Bauer*, ¶99.

### b. 1[a]: a self-contained, in-bra wearable device comprising:

Chang discloses this limitation—i.e., a breast pump device that is ““complete, or having all that is needed, in itself” and is capable of being worn in a bra.” *See* Claim Construction above; *See Bauer*, ¶100-101. Chang discloses “a small, portable, self-powered, energy efficient, *wearable* breast pump system” (*Chang*, ¶4) that “is contemplated to *fit comfortably and conveniently into a bra of a user*” (*id.*, ¶11), with the components of the device “*all contained within a cup of a brassiere.*” *Id.*, ¶19. *Bauer*, ¶100-101.

### c. 1[b]: a pump housing that includes:

Chang discloses this limitation. *See Bauer*, ¶102. Chang discloses a “*housing* or outer shell 12 of” the breast pump device as shown in Figures 1A and 6A (annotated in blue below). *Chang*, ¶71; *Bauer*, ¶102.



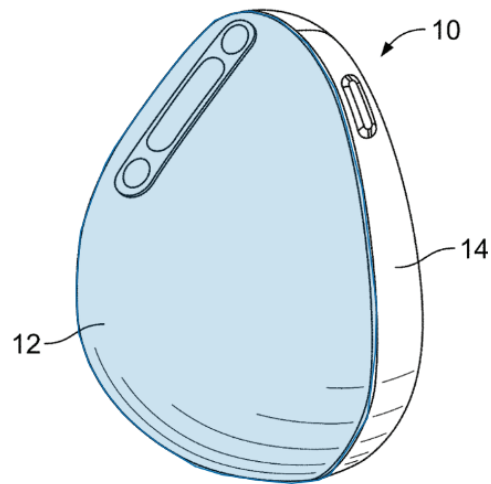


FIG. 1A

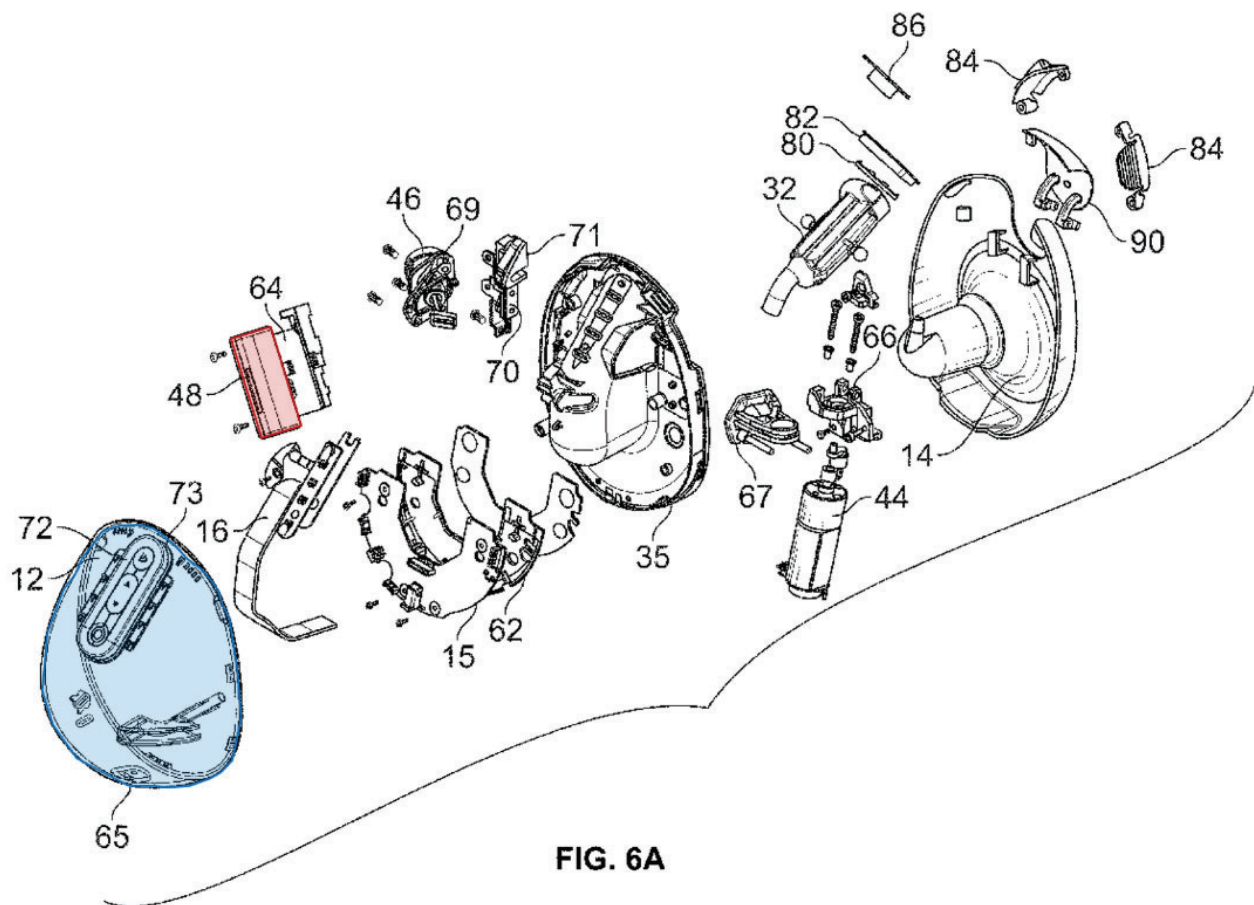


FIG. 6A

**d. 1[b][i]: a rechargeable battery,**

Chang discloses this limitation. *See Bauer*, ¶103. Chang’s breast pump device “is battery powered” and “compris[es] a battery, wherein the battery is received in the compartment of the external shell.” *Chang*, ¶20. “A **battery** 48 is included to provide a **rechargeable power source** and is configured to be **plugged into a power source for charging**.” *Id.*, ¶72. “A battery bracket 64A” within the chassis inside housing 12 is “sized and shaped to receive a **rechargeable battery** 48 assembly that powers” the breast pump device. *Id.*, ¶80, Fig. 6A above (item 48 annotated in red). *Bauer*, ¶103.

Guthrie also discloses this limitation. *See Bauer*, ¶104-105. Guthrie discloses an integrated design in which “a vacuum pump similar to external vacuum pump 103 may be disposed within the pump portion of milk capture and collection element 101. Accordingly, a battery may be included within the vacuum pump....” *Guthrie*, ¶¶27, 35, Fig. 2C. Guthrie discloses “a charging cable 404 that may **charge batteries** associated with any of the electrical components of the milk capture and collection element 101.” *Id.*, ¶40. *Bauer*, ¶104-105.

As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie. *Id.*, ¶106.

**e. 1[b][ii]: a power charging circuit for controlling charging of the rechargeable battery,**

Chang alone or in combination with Guthrie teaches this limitation. *See Bauer*, ¶¶107-113. Chang discloses a breast pump device with a rechargeable battery “configured to be plugged into a power source for charging.” *Chang*, ¶¶4, 20, 72; *Bauer*, ¶107.

A POSITA would have understood, and found it obvious, that a device with a rechargeable battery has a power charging circuit for controlling charging of the battery. *Id.*, ¶108. Rechargeable batteries are often charged using household electricity, which in the U.S. is alternating current and 120 volts. *Id.* Rechargeable batteries for devices such as breast pumps operate using direct current and low voltages (e.g., 3 volts). *Id.* Therefore, a POSITA would have known that household electricity must be converted using electrical components such as a rectifier (to convert AC to DC) and a transformer (to step down voltage) to work with the rechargeable battery. *Id.* Such electrical components are often contained in a “transformer brick” or block-shaped plug that have been ubiquitous for electrically-powered consumer devices for decades, but such components can be located in the devices themselves instead. *Id.*

After such conversion of electricity, it must be further modified to account for additional battery-related factors such as the battery’s chemistry (e.g., Nickel-

Cadmium, Nickel Metal-Hydride, and Lithium-Ion) and desired parameters such as charging time, temperature, and safety. *Id.*, ¶109. Such modifications are carried out by a power charging circuit comprising electrical components on one or more printed circuit boards, typically inside the device. *Id.* Without such a power charging circuit, a POSITA would have understood the battery would not charge, could be damaged, and could catch fire or explode. *Id.*

If the Board finds that Chang does not disclose or suggest 1[b][ii], the combination of Chang and Guthrie teaches it. Chang does not expressly refer to a power charging circuit for controlling charging of the rechargeable battery, and so a POSITA would have looked elsewhere for information about a power charging circuit. *Id.*, ¶110. Guthrie discloses a breast pump system having a power charging circuit for controlling charging of a rechargeable battery. *Guthrie*, ¶40. A POSITA would have been motivated to combine the breast pump device of Chang with the power charging circuit of Guthrie for the teaching of such a circuit to charge either reference's rechargeable battery. *Bauer*, ¶110.

Guthrie discloses an external cable connects to the breast pump device to “*charge batteries associated with any of the electrical components* of the milk capture and collection element 101....” *Guthrie*, ¶40. As discussed in the Motivation To Combine section above, a POSITA would have known that such electrical components include a power charging control circuit so that the electricity

provided by the charging cable is modified to account for battery-related factors such as the battery's chemistry and desired parameters such as charging time, temperature, and safety. *Bauer*, ¶111.

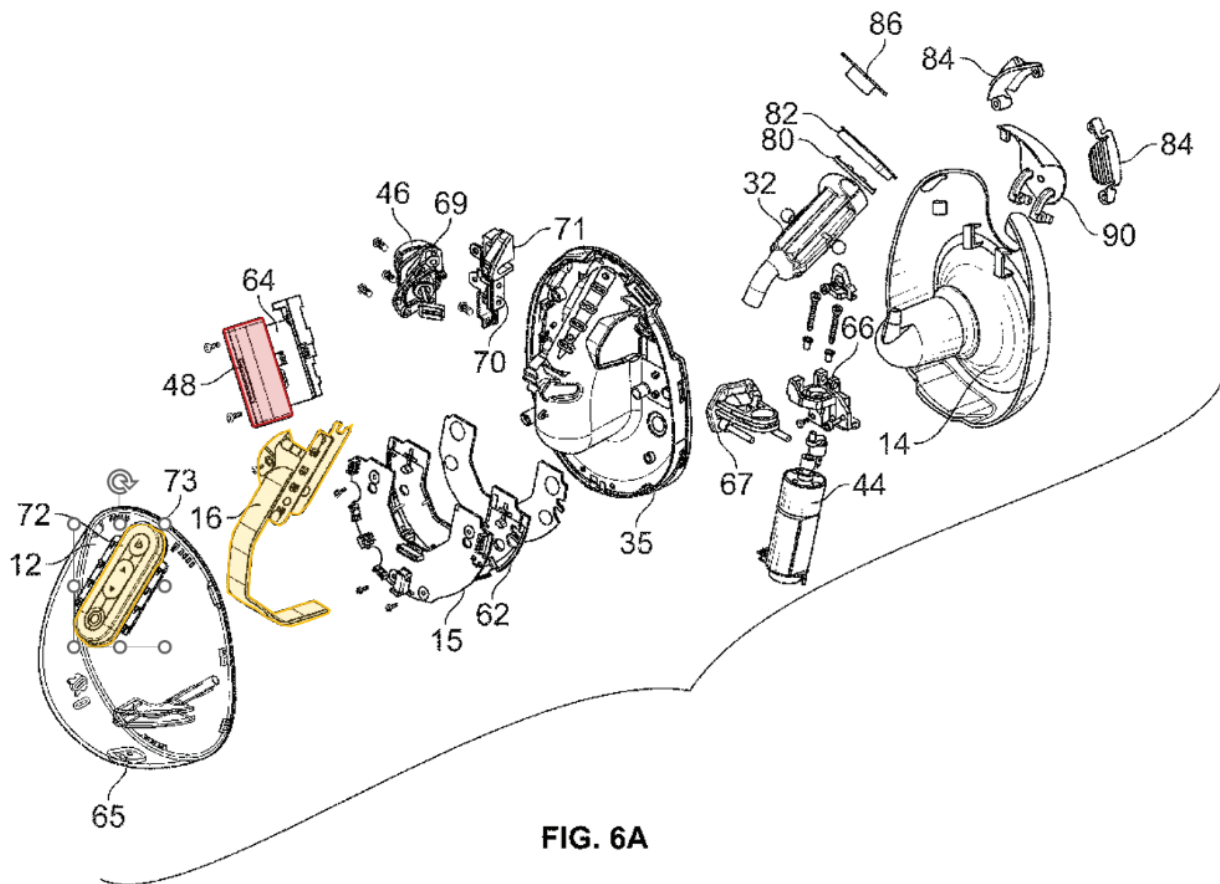
Guthrie discloses that its breast pump device can have a USB-A style adapter to receive the charging cable. A USB-A style adapter is a type of industry standard connector for transmitting power and data. Because it is a standard interface, it was foreseeable that users of the Guthrie breast pump might use power supplies of varying characteristics to charge the device. Accordingly, a POSITA would have known that the power charging circuit to modify the electricity to account for battery-related factors such as the battery's chemistry and desired parameters such as charging time, temperature, and safety should be located inside the breast pump—i.e., on the device-side of the USB-A adapter—to account for electricity of varying characteristics being supplied to the device. *Id.*, ¶112.

As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie. *Id.*, ¶113.

**f. 1[b][iii]: control electronics powered by the rechargeable battery,**

Chang discloses this limitation. *See Bauer*, ¶114-115. Chang discloses control electronics powered by rechargeable battery 48. For example, Chang states, “control panel 17 is in electronic communication with the controller via the flex-

circuit 16 and provides the user with the ability to power the system on and off as well as to alter functioning.” *Chang*, ¶72. “A battery 48 is included to provide a rechargeable power source and is configured to be plugged into a power source for charging.” *Id.* Referring to Figure 6A (annotated in red and yellow below), *Chang* states, “user interface panel can include a button membrane 72 and a button membrane housing 73 each supported on the housing 12 and placed in engagement with the flex-circuit 16 that provides the user with system control.” *Id.*, ¶80. *Bauer*, ¶114-115.



**g. 1[b][iv]: a pump powered by the rechargeable battery and configured to generate negative air pressure,**

The combination of Chang and Weber teaches this limitation. *See Bauer*, ¶116-119.

Chang discloses a pump that generates a vacuum with a compressible conduit or “flex-tube.” *Chang*, ¶¶72-75. But Chang is not limited to such a pump design and states its pump includes “one or more pumps and equivalents thereof known to those skilled in the art” (*id.*, ¶68) and that the pump need not rely on a tubular structure (*id.*, ¶79). Weber discloses a specific kind of diaphragm pump, which was a common type of pump used in breast pumps. *Weber*, ¶19 (“The vacuum pump is preferably a diaphragm pump, wherein the chamber is the vacuum-generating pump chamber of the vacuum pump, and the diaphragm is the diaphragm of the pump chamber used for generating the vacuum.”); *Bauer*, ¶117. Weber states its pump design can be used in known breast pumps and specifically cites examples of breast pumps in which the breast shield and pump are both worn in a bra as prior art. *Weber*, ¶6. Weber also states that the motor of its pump can be battery operated. *Id.*, ¶70. *Bauer*, ¶118.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *Id.*, ¶119.



**h. 1[b][v]: a Universal Serial Bus (USB) charging socket for transferring power to the power charging circuit and the rechargeable battery, and**

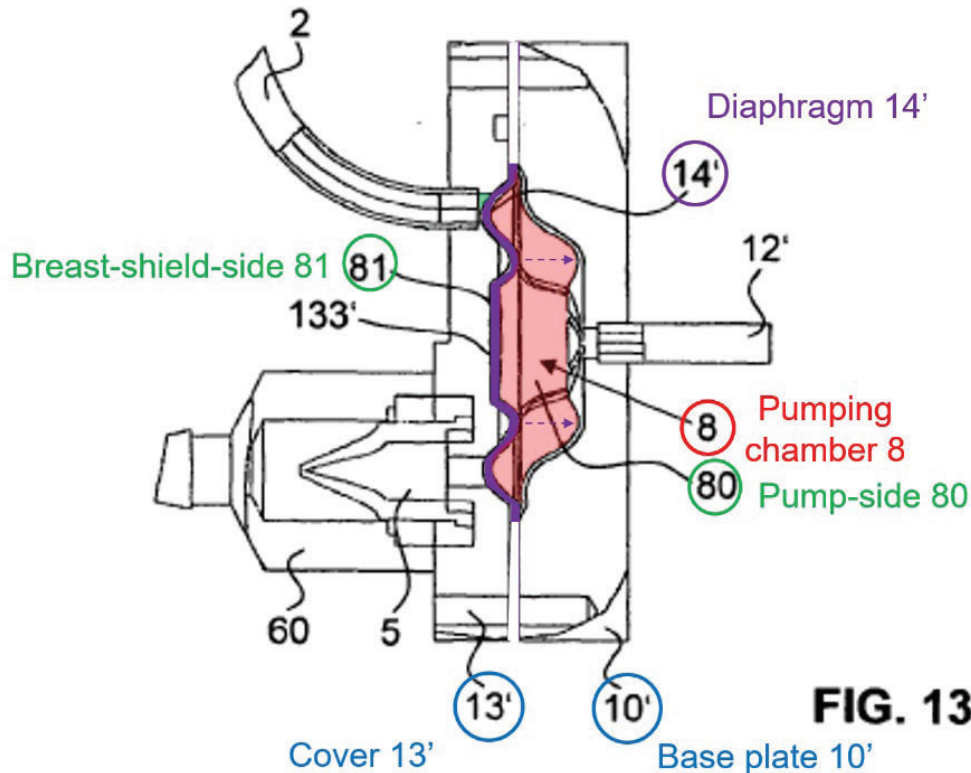
The combination of Chang and Guthrie teaches this limitation. *See Bauer*, ¶120-122.

Chang discloses a breast pump having a housing with a “cover jack...for accepting a power cord connector” for charging the rechargeable battery (*Chang*, ¶80) but does not specify any interface by which the battery is charged, so a POSITA would have looked elsewhere for such an interface. As discussed above for 1[b][ii], Guthrie discloses a USB-A type charging socket for transferring power to the power charging circuit and the rechargeable battery. *Bauer*, ¶121.

As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie. *Id.*, ¶122.

**i. 1[b][vi]: a recess or cavity that defines a pumping chamber;**

Weber discloses this limitation. *See Bauer*, ¶123-124. Weber discloses a “vacuum-generating *pump chamber* of [a] vacuum pump.” *Weber*, ¶19. As shown in annotated Figure 13 below, Weber discloses a pumping chamber 8 that is defined by a recess or cavity between cover 13’ and base plate 10’. *Bauer*, ¶123. A diaphragm (shown in a relaxed position in annotated Figure 13 below) divides pumping chamber 8 into a breast-shield-side 81 and a pump-side 80. *Weber*, ¶¶95-96; *Bauer*, ¶123.

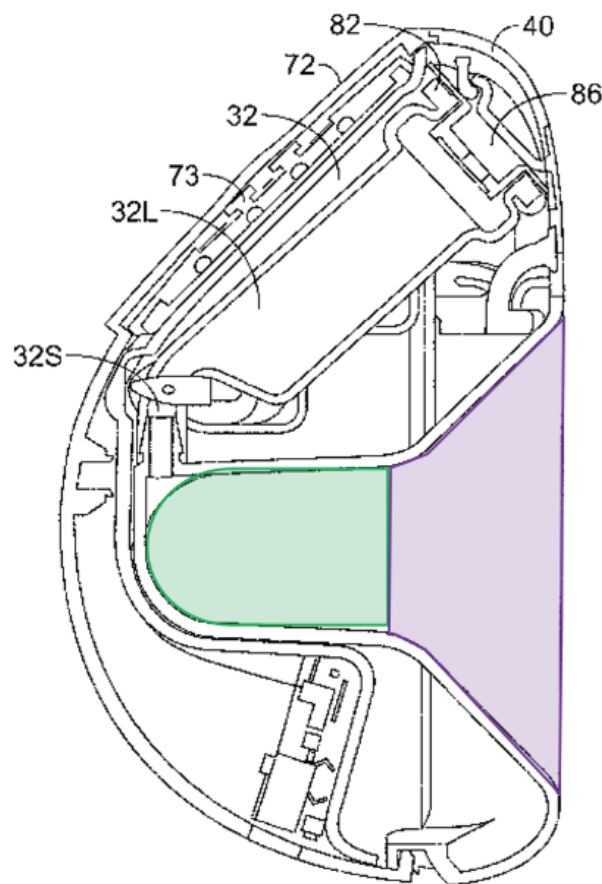


As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *Id.*, ¶124.

**j. 1[c]: a breast shield made up of a breast flange and a nipple tunnel;**

Chang discloses this limitation. *See Bauer*, ¶125-127. Chang discloses that its breast pump device “is configured with a flange 14 which is sized and shaped to engage a breast of a user. The flange 14 is contoured to comfortably fit against a wide range of user’s bodies and to provide structure for sealingly engaging with breast tissue.” *Chang*, ¶71. The flange has two parts—a “nipple receiving portion...contoured to more closely match the natural shape of the nipple” (*id.*, ¶90), and “surfaces that extend outwardly from a nipple receiving portion of the flange to

engage breast tissue, thus providing extra surface area for comfortably contacting tissue” (*id.*, ¶71). “The nipple receiving portion can be cylindrical in the portion adjoining the breast contact portion.” *Id.*, ¶90. The flange comprising the nipple receiving portion (in green) and breast-engaging surface (in purple) can be seen in Chang’s annotated Figure 4 below. *Bauer*, ¶125-126.



**FIG. 4**

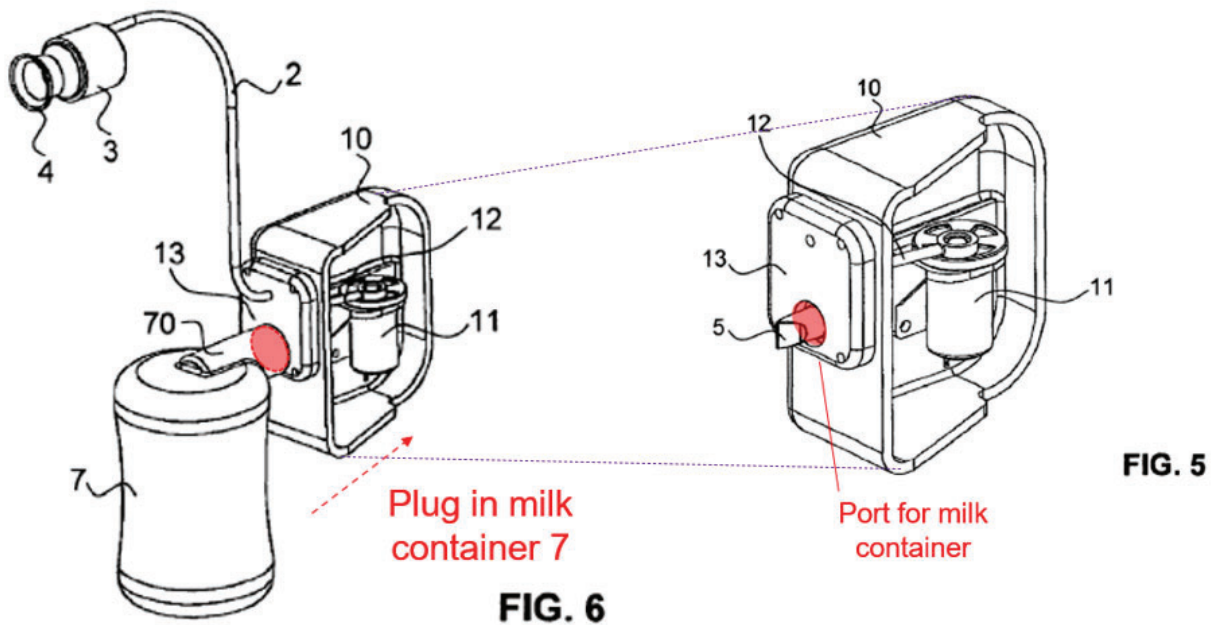
A POSITA would have understood that Chang’s flange 14 and extended portion for receiving the nipple disclose this breast shield element. *Id.*, ¶127.

- k. 1[d]: a milk container that is configured to be attached to and removed from the pump housing; and**

The combination of Chang and Weber teaches this limitation. *See Bauer*, ¶128-132.

Chang discloses a flexible milk collection container that is located within the housing and is configured to be attached to and removed from the flex-tube so that milk that is pumped by the flex tube flows into the container. *Chang*, ¶¶102-107. But Chang also teaches, “It is to be recognized that the collection or container assembly can be placed in alternative locations as well.” *Id.*, ¶105. And Chang also discloses that its invention can be used with a milk container that “can be flexible or rigid, or disposable or reusable.” *Id.*, ¶21. *Bauer*, ¶129.

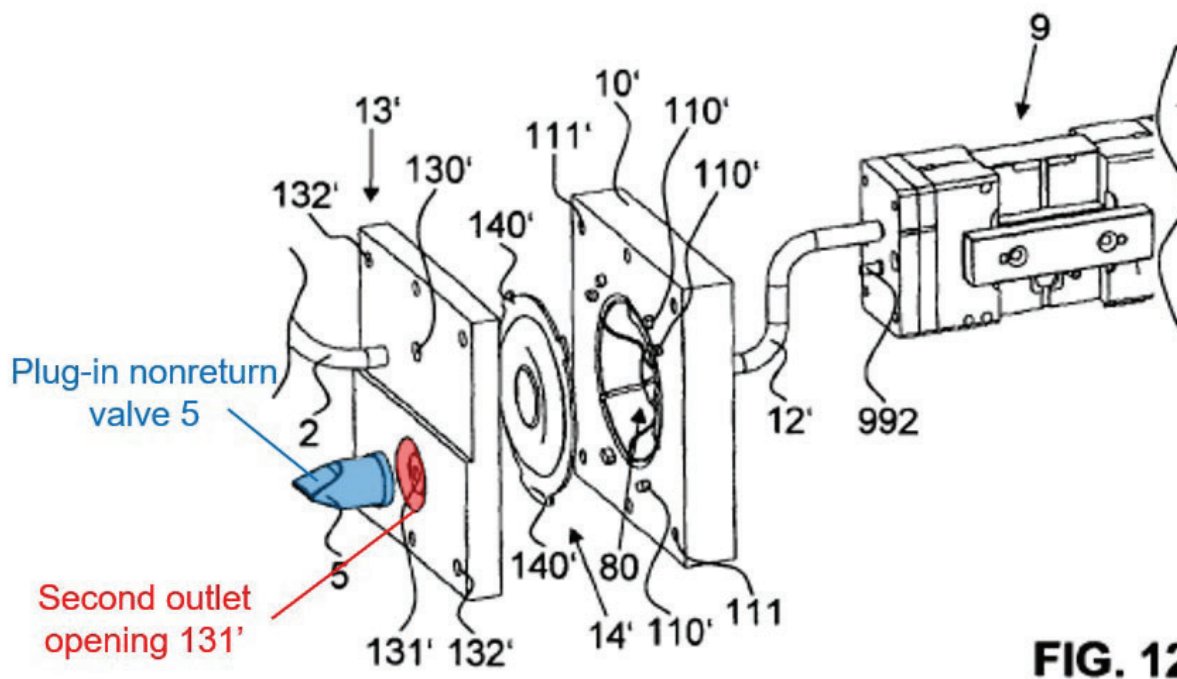
Weber discloses that the milk container can be attached to and removed from the pump housing. Annotated Figures 5 and 6 show such an arrangement:



Weber explains:

As illustrated in FIG. 6, the milk collecting container 7 may alternatively be fastened directly to the vacuum pump 1. For this purpose, there is preferably a suitably shaped adapter 70 on the milk collecting container 7, the adapter being detachably connectable to a housing 10 of the vacuum pump.

*Weber*, ¶69. This same “detachably connectable” milk container configuration is used in Weber’s other embodiments as shown in annotated Figure 12 below. *Id.*, ¶75. *Bauer*, ¶130-131.



As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. As also discussed above, Chang's teachings would have motivated a POSITA to put a milk container in an alternative location such as below the pump housing. Weber is an example of a prior art breast pump having a container that is configured to be attached to and removed from the pump housing. *Id.*, ¶132.

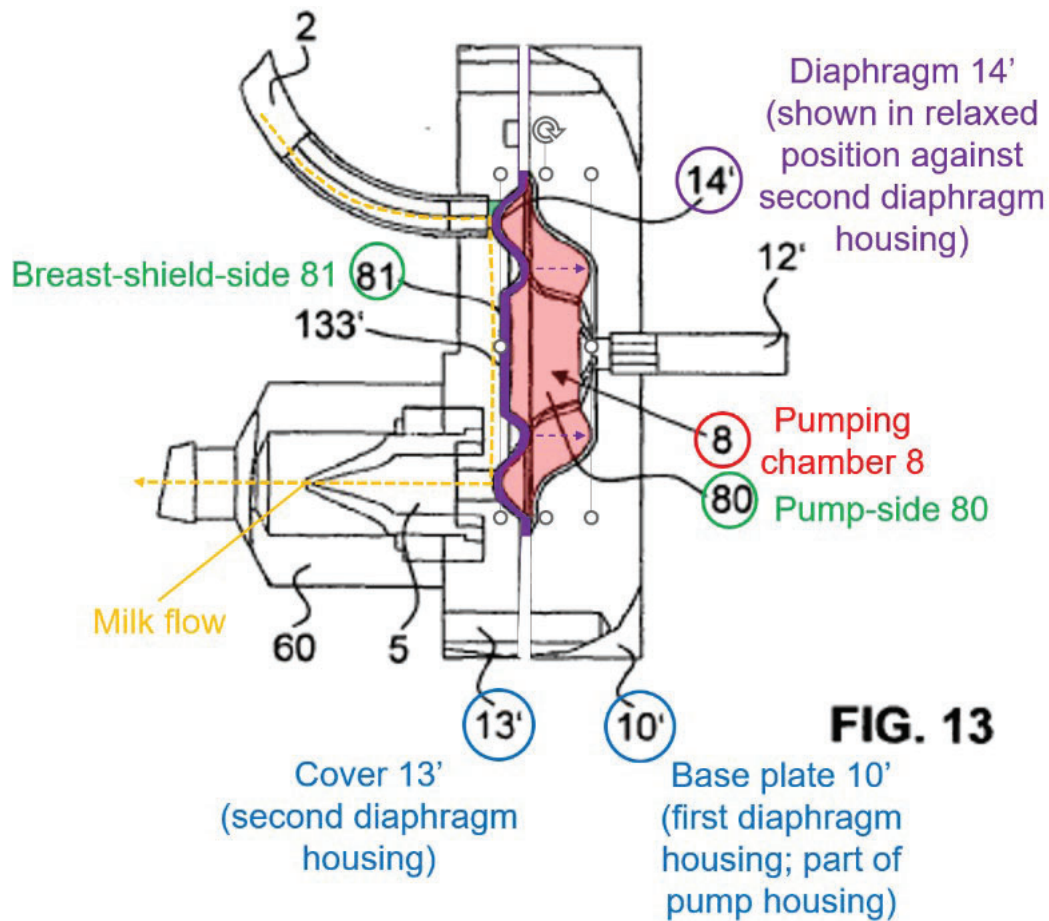
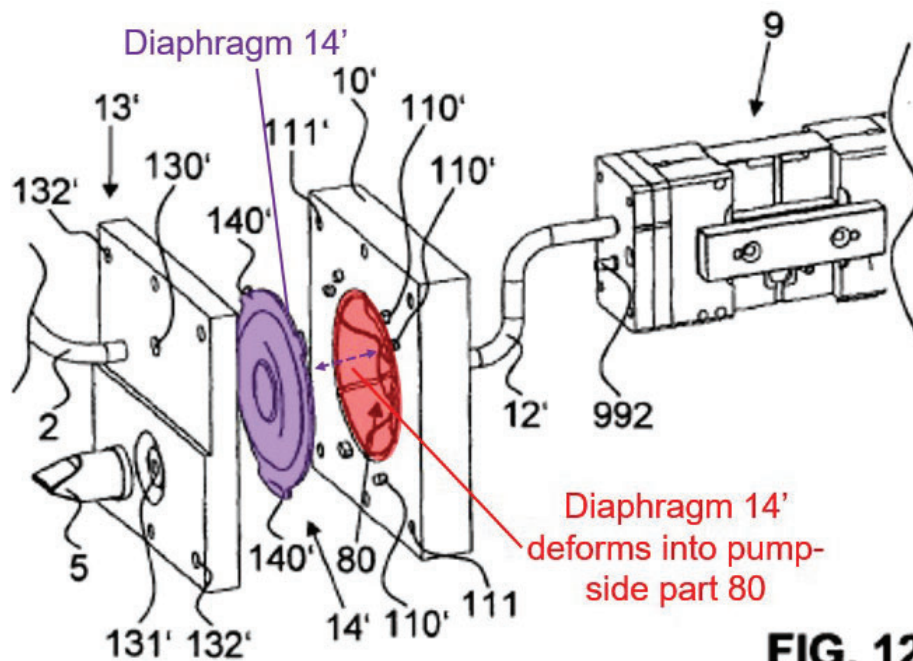
- l. 1[e]: a diaphragm that is configured to prevent milk from reaching the pump, the diaphragm being seated against a diaphragm housing that is fixed to a recessed surface of the pump housing, and the diaphragm being a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.**

Weber discloses this limitation. *Weber*, ¶¶16-17, 23, 71, 95-96; *see also Bauer*, ¶133-138. Referring to Figures 12 and 13 below, Weber states that the diaphragm prevents milk from reaching the pump:

[T]he diaphragm 14' is not the diaphragm of the vacuum pump, as in the previous examples, but an additional diaphragm. As before, the diaphragm 14' has the function of separating media and serves as a partition wall between the breast-shield-side part 81, which is filled with milk during use, and the unit- or pump-side part 80, which has a negative pressure and is filled with air.

*Weber*, ¶¶96. *Bauer*, ¶134-135.





Weber discloses that the diaphragm is seated against diaphragm housing that is fixed to a surface of the housing as follows: “The *diaphragm 14 is arranged in a recess 112 of the housing 10*, which forms part of a pump chamber.” *Weber*, ¶71.

The diaphragm 14’ illustrated here has a circular outline, the diaphragm having laterally protruding wings 140’. There are three wings 140’. *The base plate 10’, which in turn may be part of a vacuum pump housing* has lateral stops 110’ between which the wings 140’ are held. As a result, the diaphragm 14’ can be held in an unambiguous position in the chamber 8, which facilitates assembly.

*Id.*, ¶97. *Bauer*, ¶136.

Weber discloses that the diaphragm is a membrane that deforms in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel. *Weber*, ¶¶95-96.

Furthermore, as before, the diaphragm 14’ is moved cyclically, as is described below. As a result, the diaphragm 14’ transports the milk from the breast shield 4 through the breast-shield-side part 81 into the milk collecting container 7, irrespective of the relative position of the breast shield 4, the vacuum pump 9, and the milk collecting container 7 with respect to one another.

...

The embodiment described here is a separate diaphragm pump, referred to here as a pump unit 9. The diaphragm 14’ is connected to the pump

unit 9 via a vacuum line 12' and is driven by the pump unit 9 on the basis of the cyclically changing pressure in the vacuum line 12'.

*Id.*, ¶¶96, 98. *Bauer*, ¶137.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *Id.*, ¶138.

### 3. Claim 29

Claim 29 is broader than claim 1. The combination of Chang, Weber, and Guthrie discloses and teaches claim 29 for essentially the same reasons that it discloses and teaches claim 1, as explained below by reference to the elements of claim 1. A POSITA would have understood that the “membrane” required by claim 29 and its dependents is taught by the same prior art disclosures that teach a “diaphragm.” *Bauer*, ¶139, 150.

- a. **29[pre]: A breast pump device that is configured as a self-contained, in-bra wearable device, the breast pump device comprising:**

29[pre] corresponds to 1[pre] and 1[a]. *Id.*, ¶140.

- b. **29[a]: a self-contained, in-bra wearable device comprising:**

29[a] is the same as 1[a]. *Id.*, ¶141.

- c. **29[b]: a housing that includes:**

29[b] is the same as 1[b] except it refers to “housing” instead of “pump housing.” *Id.*, ¶142.

**d. 29 [b][i]: a rechargeable battery,**

29[b][i] is the same as 1[b][i]. *Id.*, ¶143.

**e. 29 [b][ii]: a power charging circuit for controlling charging of the rechargeable battery,**

29[b][ii] is the same as 1[b][ii]. *Id.*, ¶144.

**f. 29 [b][iii]: control electronics powered by the rechargeable battery,**

29[b][iii] is the same as 1[b][iii]. *Id.*, ¶145.

**g. 29 [b][iv]: a pump powered by the rechargeable battery and configured to generate negative air pressure, and**

29[b][iv] is the same as 1[b][iv]. *Id.*, ¶146.

**h. 29 [b][v]: a Universal Serial Bus (USB) charging socket for transferring power to the power charging circuit and the rechargeable battery;**

29[b][v] is the same as 1[b][v]. *Id.*, ¶147.

**i. 29 [c]: a breast shield made up of a breast flange and a nipple tunnel;**

29[c] is the same as 1[c]. *Id.*, ¶148.

**j. 29 [d]: a milk container that is configured to be attached to and removed from the housing; and**

29[d] is the same as 1[d]. *Id.*, ¶149.

- k. **29 [e]: a membrane that is configured to define a pumping chamber at least in part with an external surface of the housing, the membrane configured to deform in response to changes in air pressure caused by the pump to create negative air pressure in the nipple tunnel.**

29[e] corresponds to and is broader than 1[b][vi] and 1[e]. 1[e] requires “a diaphragm housing that is fixed to a recessed surface of the pump housing,” whereas 29[e] requires “a pumping chamber at least in part with an external surface of the housing.” *Id.*, ¶150.

4. **Claims 2, 30: The breast pump device of claim [1/29], wherein the breast shield is configured to rotate smoothly around a nipple inserted into the nipple tunnel to provide a correct positioning of the breast shield onto a breast.**

Chang discloses these limitations. *See Bauer*, ¶151. Chang’s breast shield is “symmetrical about the nipple receiving portion” which is “cylindrical.” *Chang*, ¶90. In addition, the breast pump device “is disabled when the flange [“breast shield”] is not placed in an operating position.” *Id.*, ¶17. A POSITA would have understood if the flange (“breast shield”) is symmetrical about the cylindrical nipple receiving portion and has an operating position, the flange is configured to rotate smoothly around a nipple inserted into the nipple receiving portion (“nipple tunnel”) so that the flange is positioned into a correct operating position onto a breast. *See Bauer*, ¶151.

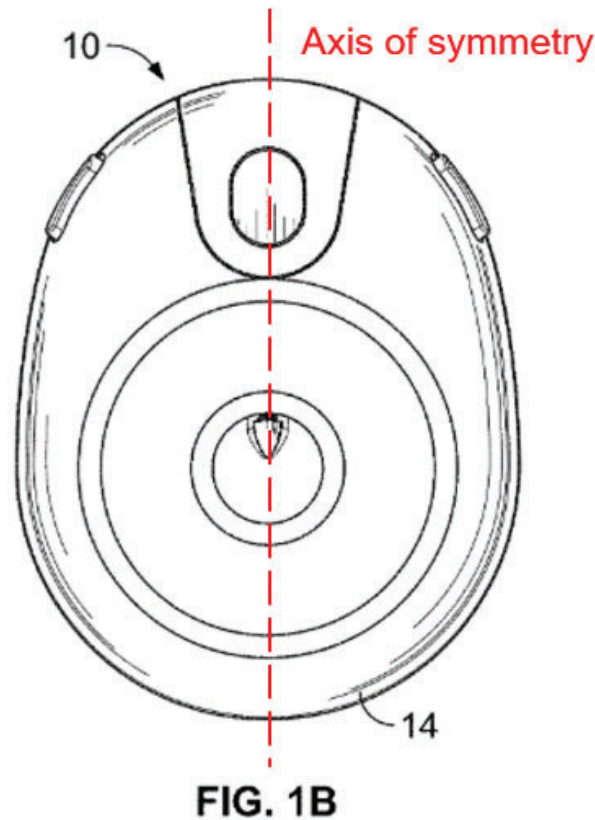
- 5. Claims 3, 31: The breast pump device of claim [1/29], wherein the breast shield is a one piece item that in use presents a single continuous surface to a nipple and a breast.**

Chang discloses these limitations. *See Bauer*, ¶152. Chang discloses that the breast shield is a “skin contact member or flange configured to form a seal with the breast.” *Chang*, ¶8. The breast shield has a “nipple receiving portion...contoured to more closely match the natural shape of the nipple” and “surfaces that extend outwardly from a nipple receiving portion of the flange to engage breast tissue.” *Id.*, ¶¶71, 90. A POSITA would have understood that Chang’s breast shield is a one piece item that presents a single continuous surface to a nipple and breast to “form a seal with the breast.” *Id.*, ¶22; *Bauer*, ¶152.

- 6. Claims 4, 32: The breast pump device of claim [1/29], wherein the breast shield has a top and bottom when positioned upright for normal use, and wherein the breast shield is generally symmetrical about a center-line running from the top to the bottom of the breast shield when positioned upright for normal use.**

Chang discloses these limitations. *See Bauer*, ¶153. Figure 1B shows a back view of Chang’s breast pump, the side facing the user’s breast and includes the breast shield. *Chang*, ¶71. Figure 1B shows Chang’s breast pump in an upright orientation when it engages the breast for normal use. *Id.* Annotated Figure 1B below shows the breast shield has a top and bottom and is symmetrical about a center-line running

from the top to the bottom of the breast shield when positioned upright for normal use.

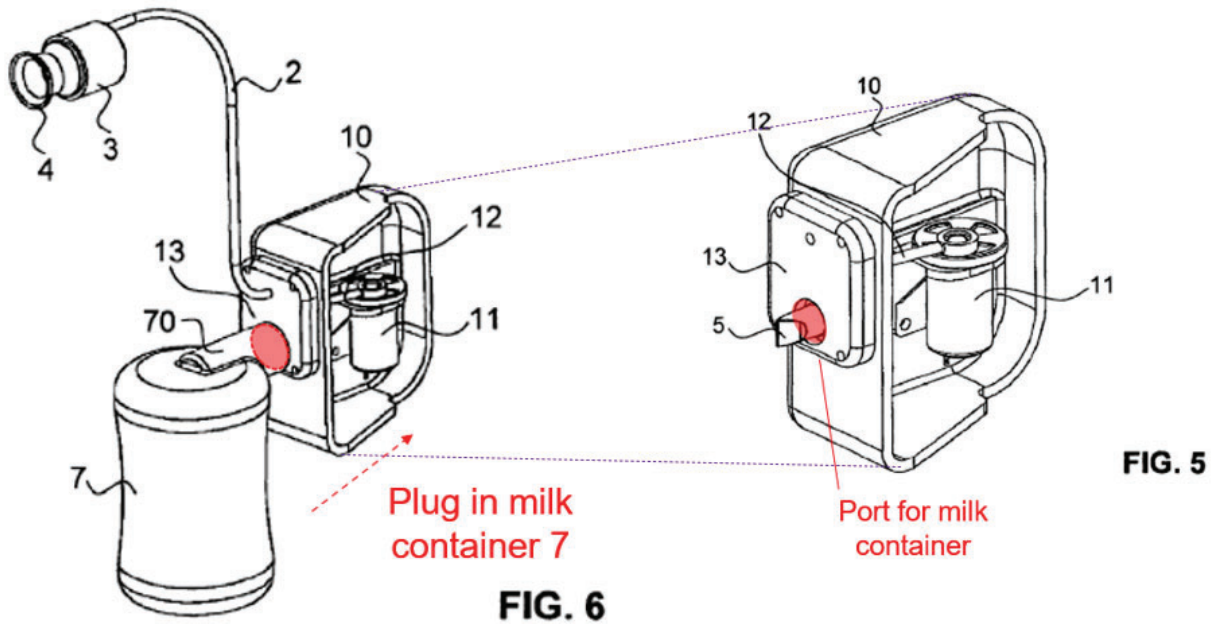


7. **Claims 6, 33: The breast pump device of claim [1/29], wherein the breast pump device includes only the breast shield and the milk container that are directly removable from the [pump housing/housing] in normal use or normal dis-assembly.**

The combination of Chang and Weber teaches these limitations. *See Bauer*, ¶154-155. Chang's breast shield can be "removed from engagement with the remainder of the" breast pump device. *Chang*, ¶105. As described for 1[d], Weber discloses an embodiment in which the milk collecting container is configured to be



attached to and removed from the pump housing, as shown in annotated Figures 5 and 6 below:



As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. As also discussed above, Chang's teachings would have motivated a POSITA to put a milk container in an alternative location such as below the pump housing. Weber is an example of a prior art breast pump having a container that is directly removable from the pump housing in normal use or disassembly. *Bauer*, ¶55. Therefore, the combination of Chang and Weber discloses breast shield and milk container that are directly removable from the pump housing in normal use or normal disassembly.



As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶156-157.

**9. Claims 8, 35: The breast pump device of claim [1/29],  
wherein the milk container is substantially rigid.**

Chang discloses these limitations. *See Bauer*, ¶158. Chang states, “the container can be flexible or *rigid*, or disposable or reusable.” *Chang* ¶21.

Guthrie also discloses these limitations. *See Bauer*, ¶159. As shown in annotated Figure 3A and 3B below, Guthrie teaches a bottle 304 (red) and a valve 301 (green) that may be replaced with a rubber nipple for feeding a baby. *Guthrie*, ¶¶37-38.

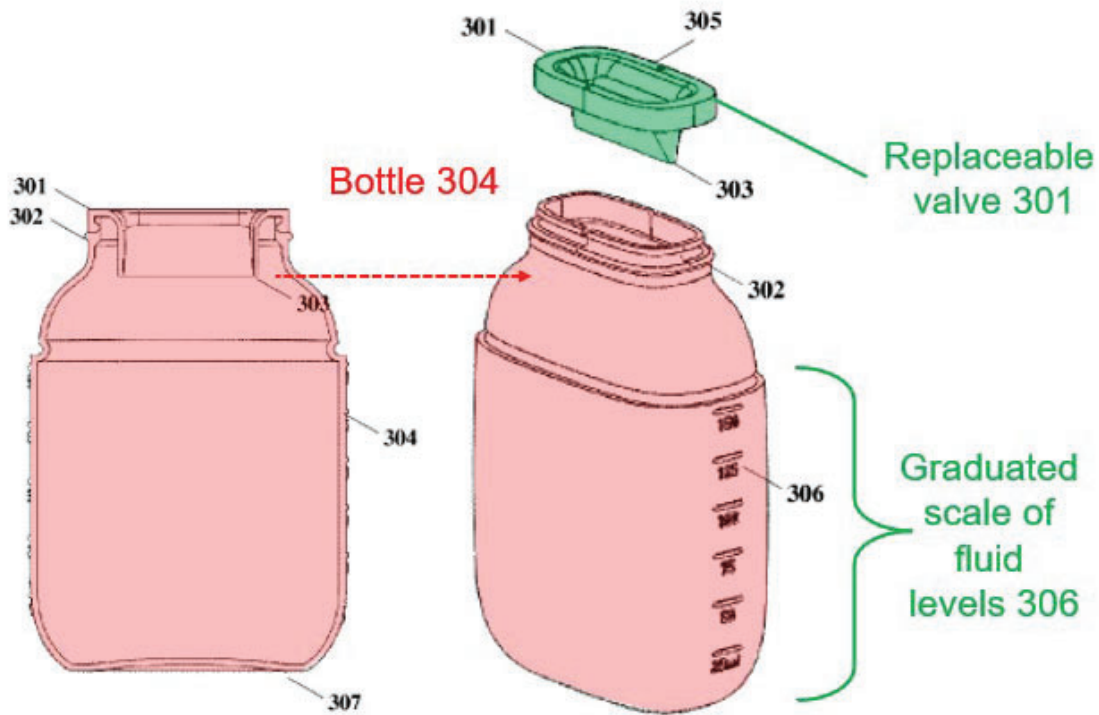
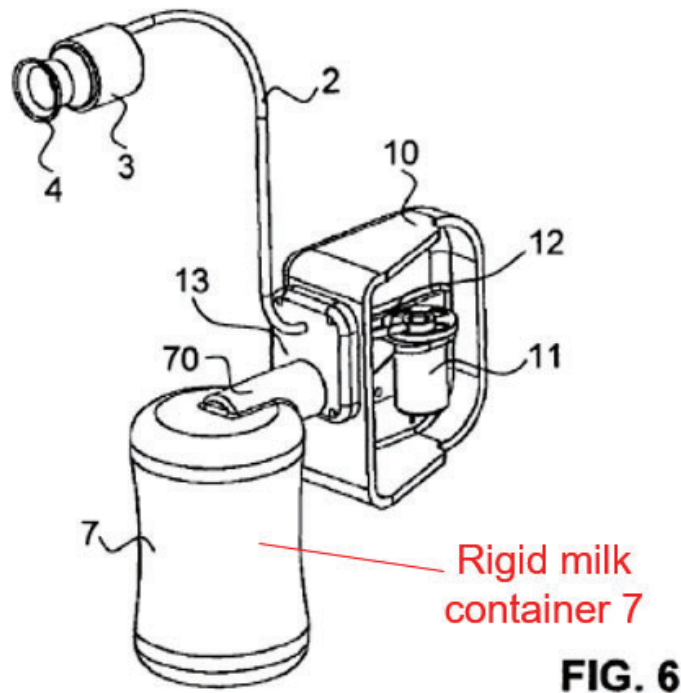


FIG. 3A

FIG. 3B

A POSITA would have understood that Guthrie's milk collection container is rigid because it can be used as a hand-held feeding bottle.

Weber also discloses these limitations. *See Bauer*, ¶160. For example, Figures 1, 2, and 6 show a milk container that stands upright. A POSITA would have known that Weber's milk container is substantially rigid.



As discussed above at pages 22-29, a POSITA would have been motivated to combine Chang with Guthrie or Weber, including with respect to the milk container. *See Bauer*, ¶158-161.

- 10. Claim 9: The breast pump device of claim 1, wherein the milk container is configured to attach to a lower part of the pump housing and to form a flat bottomed base for the breast pump device.**

Guthrie discloses this limitation. *See Bauer*, ¶162-164. Guthrie teaches a breast pump with integrated pump and bottle 304, the latter detachable from a milk capture and collection unit. *Guthrie*, ¶¶35, 37. As shown in annotated Figure 3A below, Guthrie teaches a bottle with “a *flat base* 307 to allow bottle 304 to stably

stand whether or not it contains milk, ensuring that bottle 304 does not tip or spill milk that has been collected.” *Id.*

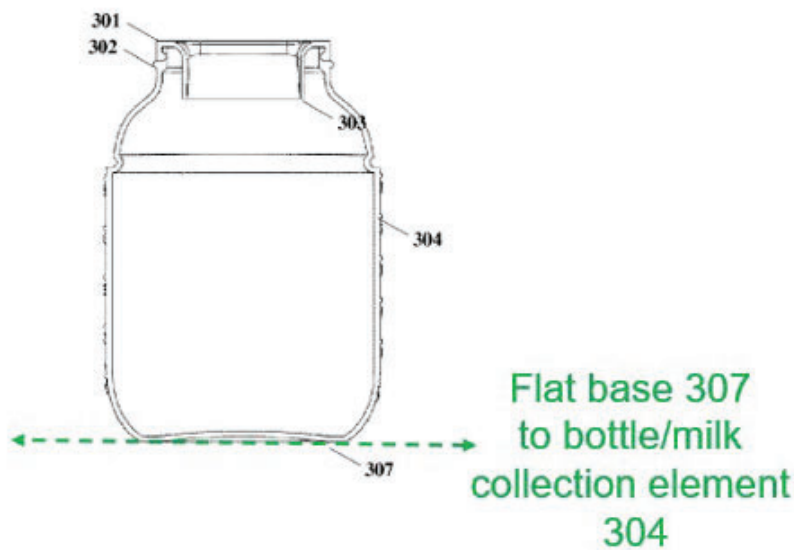


FIG. 3A

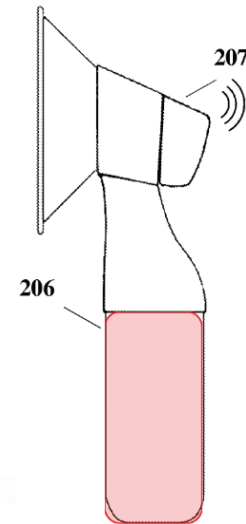


FIG. 2C

As shown in annotated Figure 2C above, Guthrie’s bottle (red) is configured to attach to a lower part of the pump housing and to form a flat-bottomed base for the breast pump device.

As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie, including with respect to the milk container. *See Bauer*, ¶162-164.

11. **Claims 11, 37: The breast pump device of claim [1/29], wherein the milk container is attachable to the [pump housing/housing] with a mechanical or magnetic mechanism that releasably attaches or latches when the milk container is sufficiently pressed on to the [pump housing/housing] with a single push action.**

Guthrie discloses these limitations. *See Bauer*, ¶165-167. Guthrie discloses that “types of connections between various portions of milk capture and collection element 101 may include *snaps*, *quick connects*, or twist (threaded) attachments.” *Guthrie* ¶24. Annotated Figure 3A shows Guthrie’s milk collection element:

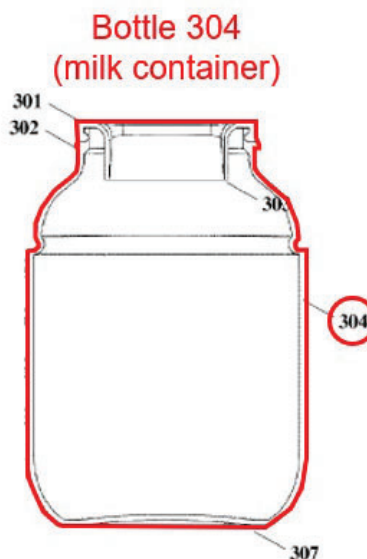


FIG. 3A

Guthrie states, “the milk collection element shown in FIG. 3A may attach to milk capture and collection element 101 in a manner that is substantially leak proof.” *Id.*, ¶37. A POSITA would have known from Guthrie’s teachings that the milk collection element is attachable to the pump housing with a mechanical mechanism



(such as a snap or quick connect) that releasably attaches or latches when the collection element is sufficiently pressed on to the pump housing with a single push action. *Bauer*, ¶166.

As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie, including with respect to the milk container. *See Bauer*, ¶165-167.

**12. Claims 12, 38: The breast pump device of claim [1/29], wherein the nipple tunnel includes on a lower surface of the nipple tunnel an opening through which expressed milk flows under gravity into the milk container.**

Guthrie discloses these limitations. *See Bauer*, ¶168-170. Guthrie discloses a “cup portion” that provides an interface for the user’s breast and nipple. *Guthrie*, ¶22. Guthrie states:

Cup portions may attach to a pump portion of milk capture and collection element 101. A pump portion of milk capture and collection element 101 comprises a vacuum pump and a vacuum chamber through which milk can flow uninterrupted as it is expressed into a milk collection portion of milk capture and collection element 101.... Accordingly, the cup portions funnel milk into the pump portion as it pumped from a woman's breast. The pump portion allows the milk to drain into a milk collection portion of milk capture and collection element 101.

*Id.*, ¶24.

As shown in annotated Figure 2C below, Guthrie shows a “milk collection element” or container that is connected to the pump portion of the breast pump and sits below the pump portion. *E.g., id.*, ¶¶24, 35, Figs. 1, 2C.

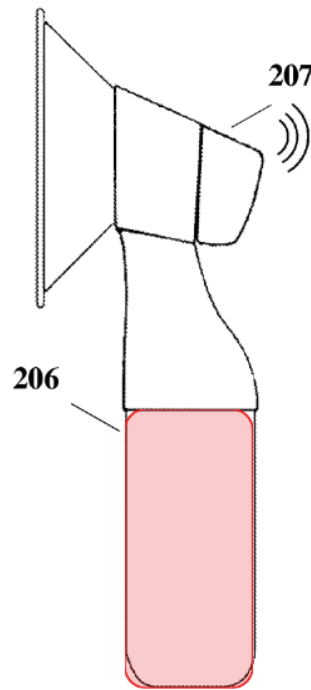


FIG. 2C

Accordingly, milk extracted from the nipple flows downward under gravity through an opening in the lower portion of the vacuum chamber into the milk collection element. *Bauer*, ¶169.

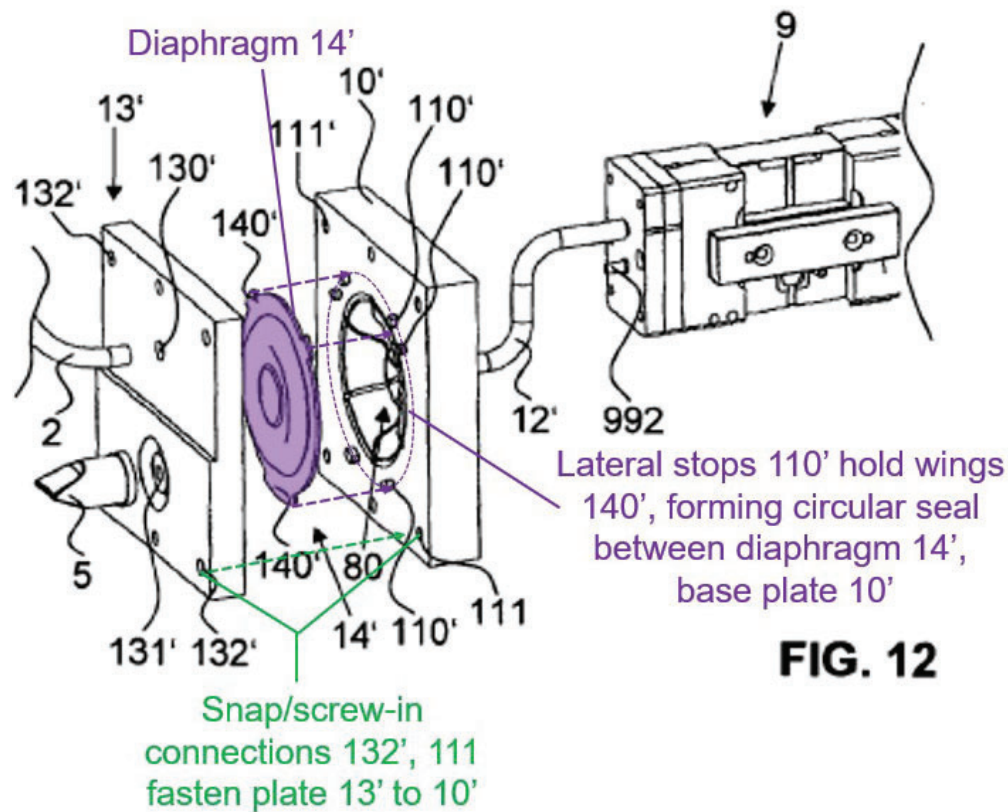
As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie, including with respect to the milk container. *See Bauer*, ¶168-170.

13. **Claims 13, 39: The breast pump device of claim [1/29], wherein the [diaphragm/membrane] defines a milk-flow side chamber on one side of the [diaphragm/membrane] and an air-side chamber on the other side of the [diaphragm/membrane].**

See discussion of 1[e] above. *See Bauer*, ¶171.

14. **Claims 14, 40: The breast pump device of claim [1/29], wherein the [diaphragm/membrane] is configured to self-seal under negative pressure around its outer edge, to form a watertight and airtight seal around the recess or cavity in the [pump housing/housing].**

Weber discloses these limitations. *See Bauer*, ¶172-174. As discussed above for 1[e], Weber’s pump has a diaphragm that “has the function of separating media and serves as a partition wall between the breast-shield-side part 81, which is filled with milk during use, and the unit- or pump-side part 80, which has a *negative pressure* and is filled with air. *Weber*, ¶96.



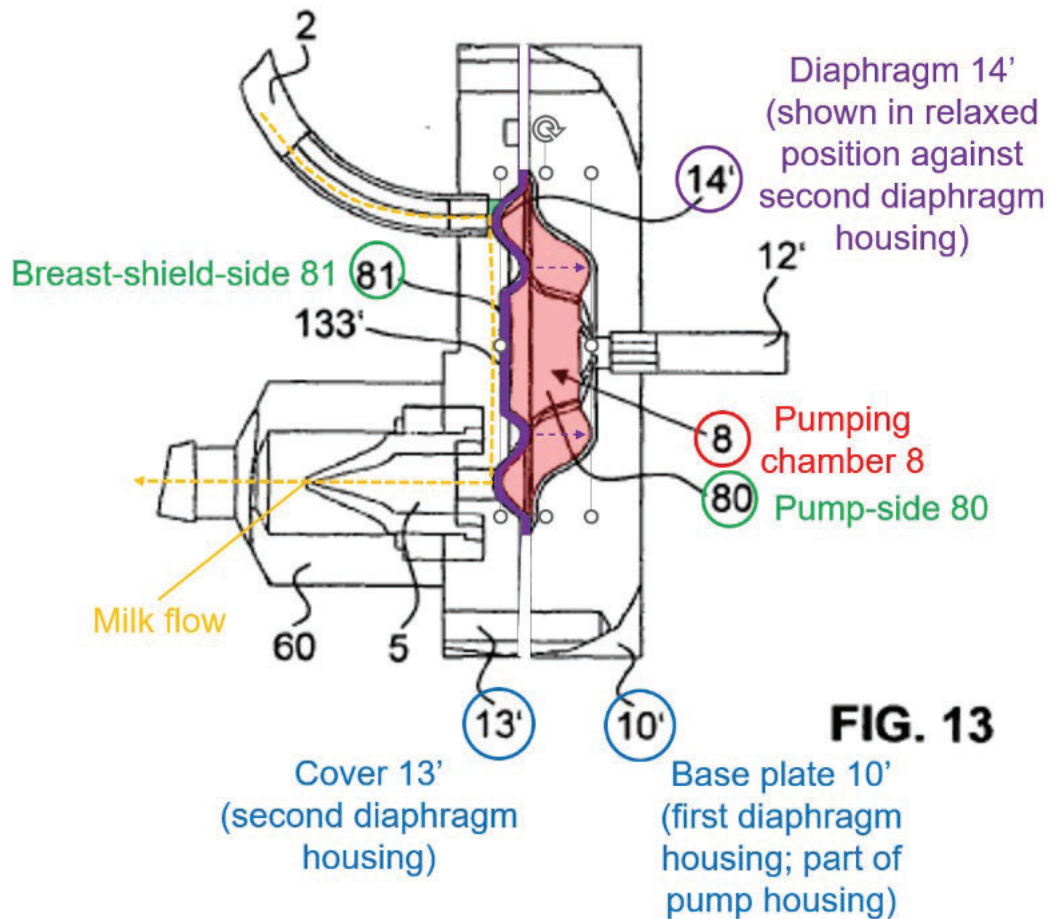
As shown above in Figure 12, Weber discloses that the diaphragm has “wings” for securing it in the recess of the pump housing: “The base plate 10’, which in turn may be part of a vacuum pump housing has lateral stops 110’ between which the wings 140’ are held. As a result, the diaphragm 14’ can be held in an unambiguous position in the chamber 8.” *Id.*, ¶97. *Bauer*, ¶173.

Accordingly, Weber teaches that the diaphragm is configured to self-seal under negative pressure around its outer edge, to form a watertight and airtight seal around the recess or cavity in the pump housing. *Bauer*, ¶174.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶172-174.

- 15. Claim 15: The breast pump device of claim 1, wherein the diaphragm housing is a first diaphragm housing, and wherein the breast pump device further comprises a second diaphragm housing attached to the nipple tunnel and configured to define a milk-flow side chamber, the diaphragm being configured to be positioned between the first diaphragm housing and the second diaphragm housing.**

Weber discloses this limitation. *See Bauer*, ¶¶175-178. As discussed above for claims 7, 34, 1[b][vi], and 1[e], Weber's diaphragm is held in a diaphragm housing comprising the cover 13' (second diaphragm housing) and base plate 10' (first diaphragm housing), which is part of the pump housing 9. *Weber*, ¶¶97, 99, Figs. 12, 13 (annotated below):



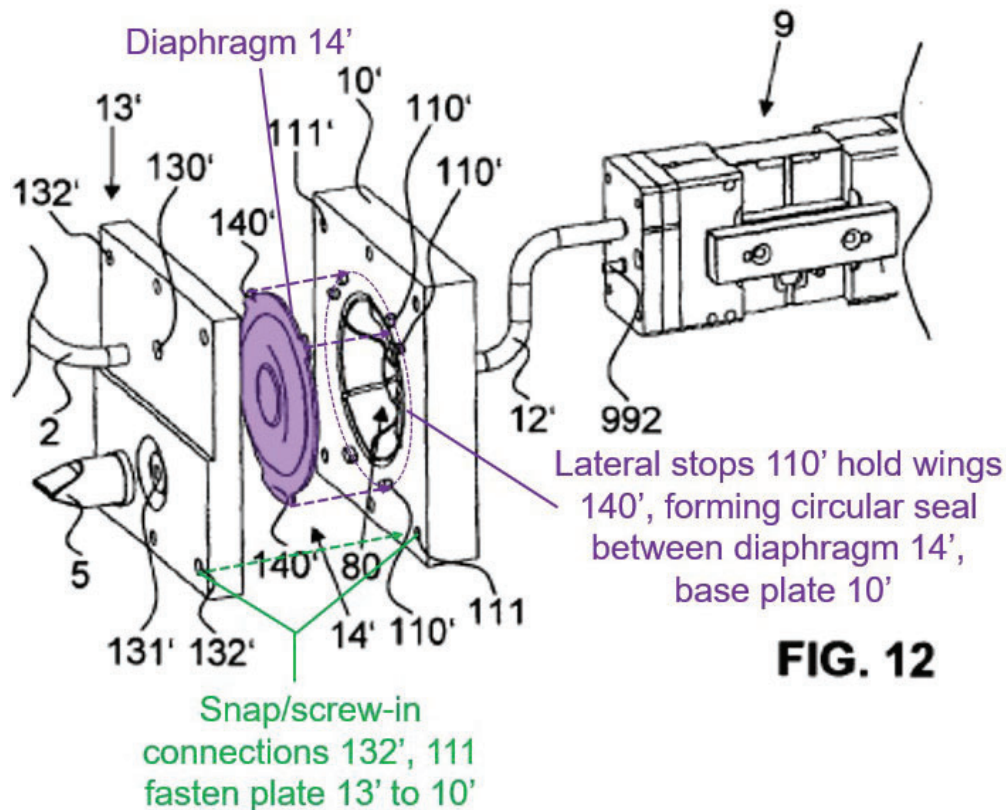
When the cover and base plate are mated together, the recesses form a pumping chamber in which the diaphragm sits. *Id.*, ¶¶95, 97, Figs. 12, 13. As discussed above for claims 14 and 40, the diaphragm serves as media separation between a milk-flow side (breast side) and a side with air (pump side). The cover 13' defines the milk-flow side of the pumping chamber. *Bauer*, ¶¶175-176.

Weber discloses that the breast shield can be “connected directly to the first port of the chamber” (*Weber*, ¶21) which is on the cover 13’—meaning that the breast shield and its nipple tunnel are attached to the milk-flow side of the chamber. *Bauer*, ¶177.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶¶175-178.

**16. Claim 16: The breast pump device of claim 15, wherein the diaphragm is configured to be releasably secured around an edge of the second diaphragm housing.**

Weber discloses this limitation. *See Bauer*, ¶¶179-180. As shown in annotated Figure 12 below, Weber discloses a diaphragm 14' with circular outline held by its wings 140' to lateral stops 110' of base plate 10' as shown below. *Weber*, ¶97.



Weber states, “A cover 13 that is *detachably connectable* to the housing 10 secures the diaphragm 14 in its position.” *Id.*, ¶71. As shown in annotated Figure 12 above, connection between cover 13' (“second diaphragm housing”) and base plate 10'

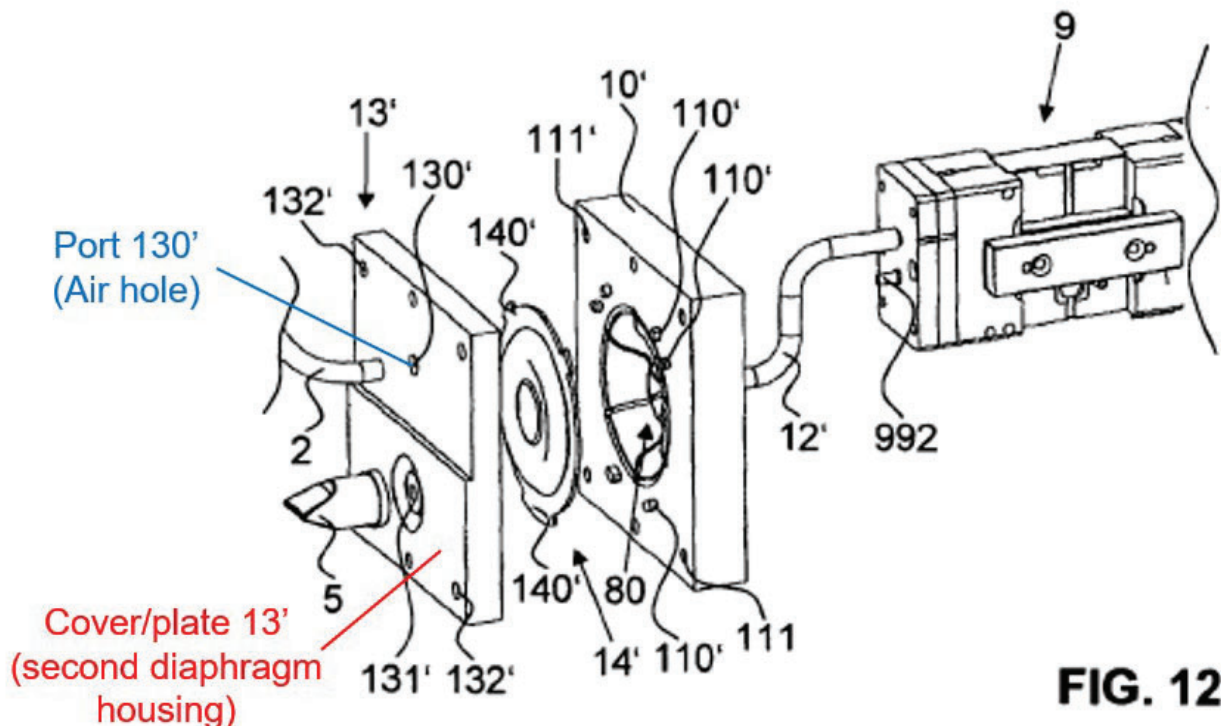


“takes place via snap-in or screw connections, wherein the corresponding holes are provided with the designations 132’ and 111’.” *Weber*, ¶¶99. *Bauer*, ¶179.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶179-180.

**17. Claim 18: The breast pump device of claim 15, wherein the second diaphragm housing includes an air hole to transfer negative air pressure to the nipple tunnel.**

Weber discloses this limitation. *See Bauer*, ¶181-183. As shown in annotated Figure 12 below, Weber discloses that second diaphragm housing’s cover 13’ contains ports 130’ and 131’ to connect first and second milk lines 2, 6. *Weber*, ¶99.



A POSITA would have understood that, at the onset of pumping, only air would occupy milk line 2 connected to port 130’, which therefore serves as an air hole

facilitating the exchange of air fluid pressure until milk expression leads to the exchange of liquid fluid pressure for pump operation. *Bauer*, ¶182.

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶181-183.

**18. Claim 19: The breast pump device of claim 15, wherein the diaphragm is a flexible and generally circular diaphragm and the second diaphragm housing has a corresponding generally circular shape.**

See discussion of claims 1[e], 7, 34 above. *See Bauer*, ¶184.

**19. Claim 20: The breast pump device of claim 15, wherein the second diaphragm housing is an integral part of the breast shield.**

Weber discloses this limitation. *See Bauer*, ¶185. Weber's breast shield 4 includes continuous passage 43 extending through connector 40 and connects to plate 13' ("second diaphragm housing") via suction line 2 as shown in annotated Figure 13 below. *Weber*, ¶¶75-81. Weber discloses that the breast shield can be "connected directly to the first port of the chamber" (*id.*, ¶21) which is on the cover 13'—meaning that the breast shield and its nipple tunnel are attached to the second diaphragm housing. *Bauer*, ¶185. It would have been obvious to a POSITA to attach the breast shield to the cover such that it is an integral part of the breast shield. *Id.*

As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber.

20. **Claim 21: The breast pump device of claim 15, wherein the diaphragm is configured to be attached around an edge of the second diaphragm housing.**

See discussion of claim 16 above. *See Bauer*, ¶186.

21. **Claim 22: The breast pump device of claim 15, wherein the diaphragm is configured to seal, self-seal, self energizing seal or interference fit seal against the first diaphragm housing.**

See discussion of claims 14 and 40 above. *See Bauer*, ¶187-188.

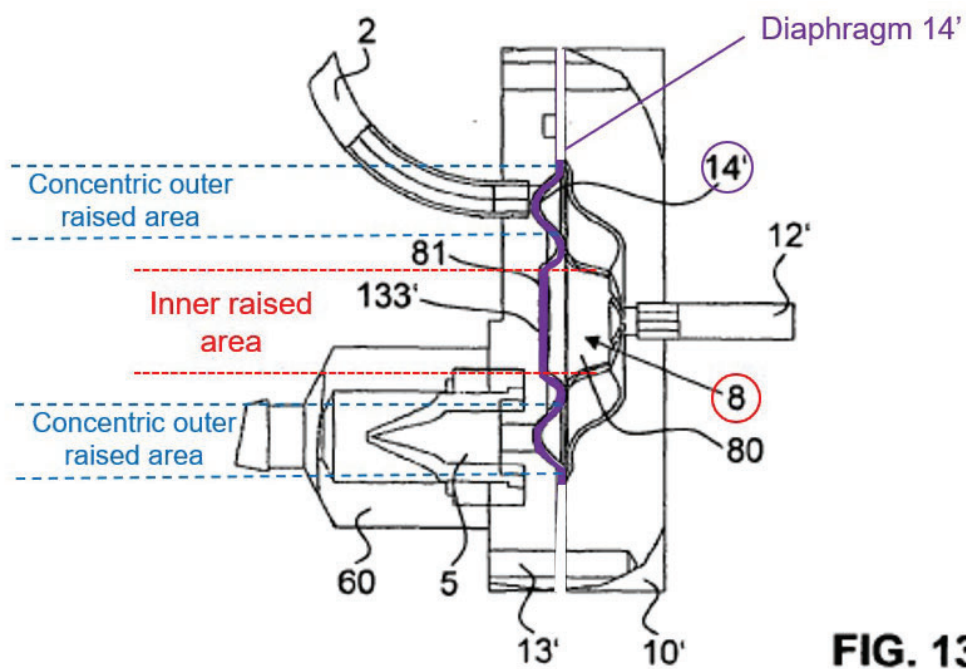
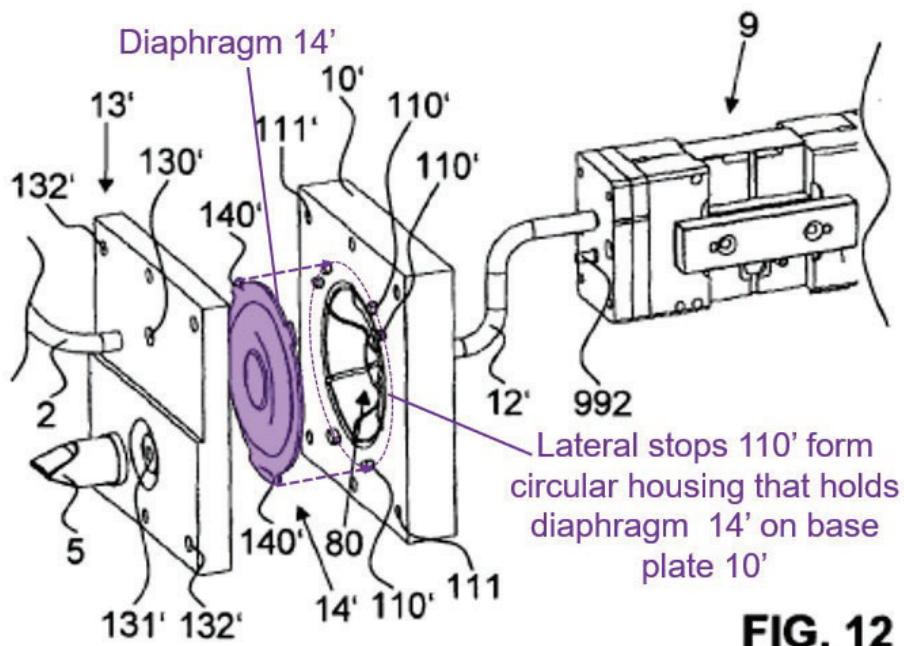
22. **Claim 23: The breast pump device of claim 1, wherein the diaphragm is a flexible and generally circular diaphragm.**

**Claim 41: The breast pump device of claim 29, the membrane is a flexible membrane.**

See discussion of claims 1[e], 7, 34 above. *See Bauer*, ¶189.

23. **Claims 24, 42: The breast pump device of claim [1/29], wherein the [diaphragm/membrane] is a flexible and generally circular [diaphragm/membrane] that, in a relaxed state, includes an inner raised area and a concentric outer raised area.**

Weber discloses these limitations. *See Bauer*, ¶190-192. See discussion of claims 1[b][vi], 7, and 34 above. Furthermore, annotated Figures 12 and 13 below show Weber's circular diaphragm in a relaxed state, which includes an inner and outer raised concentric area following the shape of the diaphragm. *Weber*, ¶¶23, 96-97; *Bauer*, ¶¶190-191.



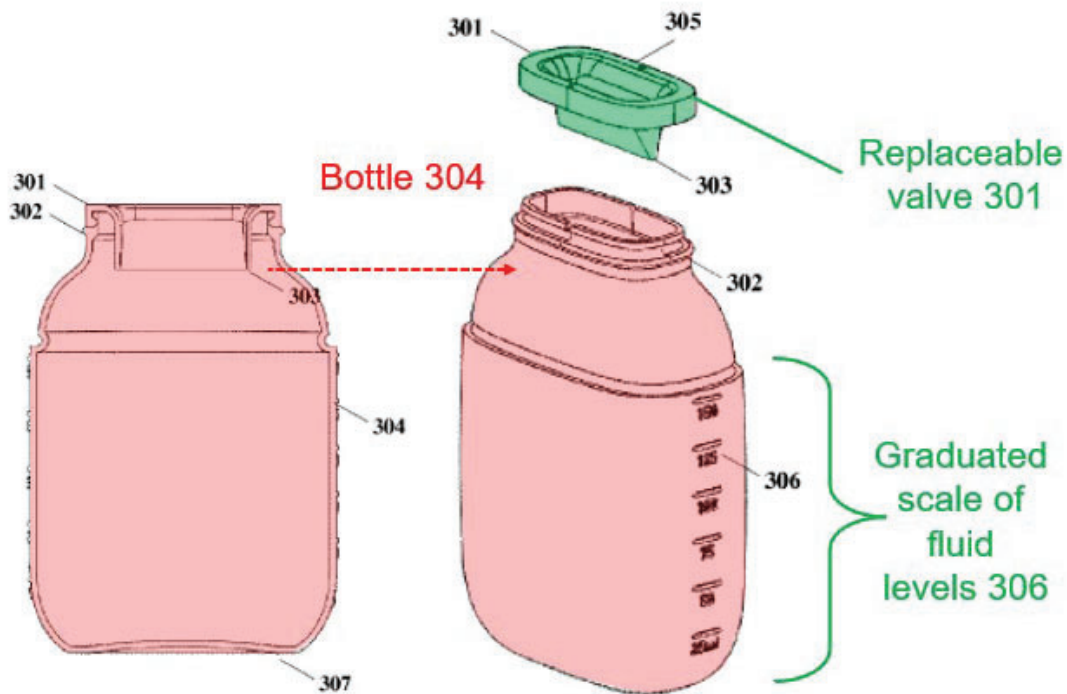
As discussed above at pages 22-26, a POSITA would have been motivated to combine Chang and Weber. *See Bauer*, ¶190-192.

- 24. Claims 25, 43: The breast pump device of claim [1/29], wherein the milk container is configured to be pressed or pushed into engagement with the [pump housing/housing].**

See discussion of claims 11 and 37 above. *See Bauer*, ¶193.

- 25. Claims 26, 44: The breast pump device of claim [1/29], wherein the self-contained, in-bra wearable device is configured so that expressed milk flows under gravity through an opening in the nipple tunnel and into the milk container through a duck-bill valve that stays sealed when there is negative air pressure being applied by the pump to ensure that negative air pressure is not applied to the milk container.**

Guthrie discloses these limitations. *See Bauer*, ¶194-196. As described in claims 12 and 38, the Chang-Guthrie combination teaches that expressed milk flows under gravity through an opening in Chang’s nipple tunnel and into Guthrie’s milk container. Furthermore, Chang itself discloses that “the milk collection container comprises a one-way valve that permits milk inflow into the milk collection container but prevents milk backflow from the milk collection container to the conduit” (i.e., back to the pump), and the valve can be “a duckbill valve.” *Chang*, ¶21. Guthrie similarly discloses “a valve 301 which can be inserted into bottle 304 [“milk container”] and mate in a leak proof fashion” as shown in annotated Figure 3B below. *Guthrie*, ¶36.





As discussed above at pages 26-29, a POSITA would have been motivated to combine Chang and Guthrie, including with respect to the milk container. *See Bauer*, ¶194-196.

**C. Ground 1B Based On Chang, Weber, Guthrie, Khalil  
(Claims 5, 10-12, 17, 25-28, 36-38, 43-46)**

**1. Motivation To Combine Chang, Weber, Guthrie, Khalil**

As discussed above for Ground 1A, a POSITA would have been motivated to combine Chang, Weber, and Guthrie. *See* pages 22-29 above. Beyond that basic combination, Khalil discloses additional limitations that are part of the claims challenged in Ground 1B—for example, concerning the relationship between the diaphragm or diaphragm housing and other parts of the breast pump and concerning the milk container. A POSITA would have been motivated to combine Chang, Weber, Guthrie, and Khalil in the manner described below. *Bauer*, ¶198-205.

As discussed above for Ground 1A, Chang discloses an in-bra wearable breast pump that generates suction by cyclical compression and decompression of a conduit or flex-tube, but its teachings are not limited to that kind of pump. *See* pages 12-14 above. Chang affirmatively teaches that its breast pump can be used with pumps of known design that generate suction using a flexible member having a non-tubular shape. *Id.*

A POSITA would have known that an example of a pump of known design that would work with Chang’s breast pump is a diaphragm pump having a diaphragm



that deforms in response to changes in air pressure caused by the pump to generate suction. *Bauer*, ¶¶200-201. As discussed above for Ground 1A, Weber discloses such a pump. Khalil also discloses such a diaphragm pump, with specific diaphragm shapes (e.g., annulus or arc) and locations (e.g., around or over the nipple tunnel) that a POSITA would have been motivated to use with the diaphragm pump of Weber and the breast pump of Chang. A POSITA would have been motivated to combine the teachings of Chang, Weber, and Khalil in designing an integrated breast pump with the breast shield, diaphragm pump, and milk container physically combined to fit in a bra. *Id.*

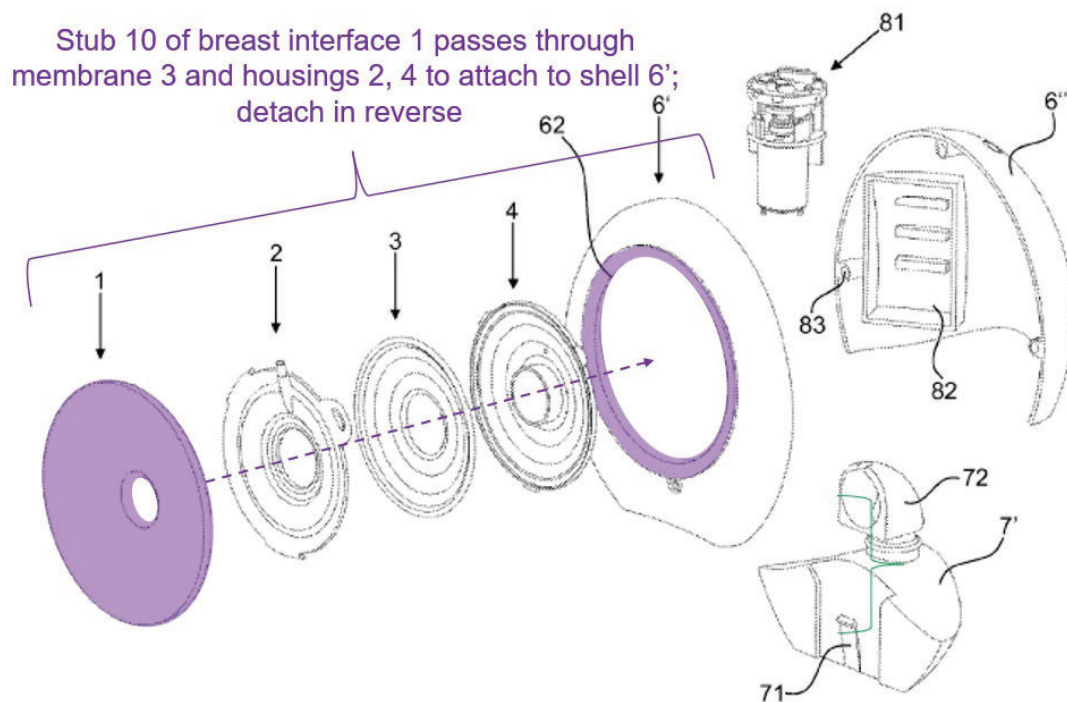
Chang discloses an embodiment having a flexible milk collection container that is located within the housing and is configured to be attached to and removed from the flex-tube so that milk that is pumped by the flex tube flows into the container. *Chang*, ¶¶102-107. But Chang also teaches, “It is to be recognized that the collection or container assembly can be placed in alternative locations as well.” *Id.*, ¶105. Furthermore, Chang discloses that its invention can be used with a milk container that “can be flexible or rigid, or disposable or reusable” (*Chang*, ¶21), but does not provide detail as to a “rigid” container design. *See, e.g., id.* ¶¶105-107, Figs. 11B-D. Thus, a POSITA would have been motivated to look elsewhere for such an embodiment. *Bauer*, ¶¶202-203.

Khalil discloses a breast pump (referred to as a “breastshield” or “breastpump”) that, similar to Chang, is also “designed as a hands-free unit and worn under a bra.” *Khalil*, ¶32 (“the invention can be designed as a hands-free unit and worn under a bra”). Khalil discloses the use of a rigid “milk collection container...integrated in the housing of the unit or coupled directly thereto.” *Id.*; *see also*, ¶69 (“[The milk collection container] is preferably made of plastic like the cover 6.”), ¶50 (“The shell 6 is preferably in one piece and rigid, and usually made of a plastic”), ¶67. As discussed above at pages 19-22, Khalil discloses an embodiment in which the milk container is attached to the breast pump below the pump housing. *Khalil*, ¶69, Fig. 11; *see also Bauer*, ¶204.

Thus, a POSITA would have been motivated to incorporate the design of Khalil’s milk container into the breast pump design of Chang. *Bauer*, ¶205. Both references are in the same field, related to in-bra breast pumps, and a POSITA would have been motivated to look to Khalil based on Chang’s suggested teachings to use a rigid milk container in its invention. *Id.*; *KSR*, 550 U.S. 416-17 (obvious to combine familiar elements according to known methods to yield predictable results and to improve similar devices in the same way); *id.* at 416 (“[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”).

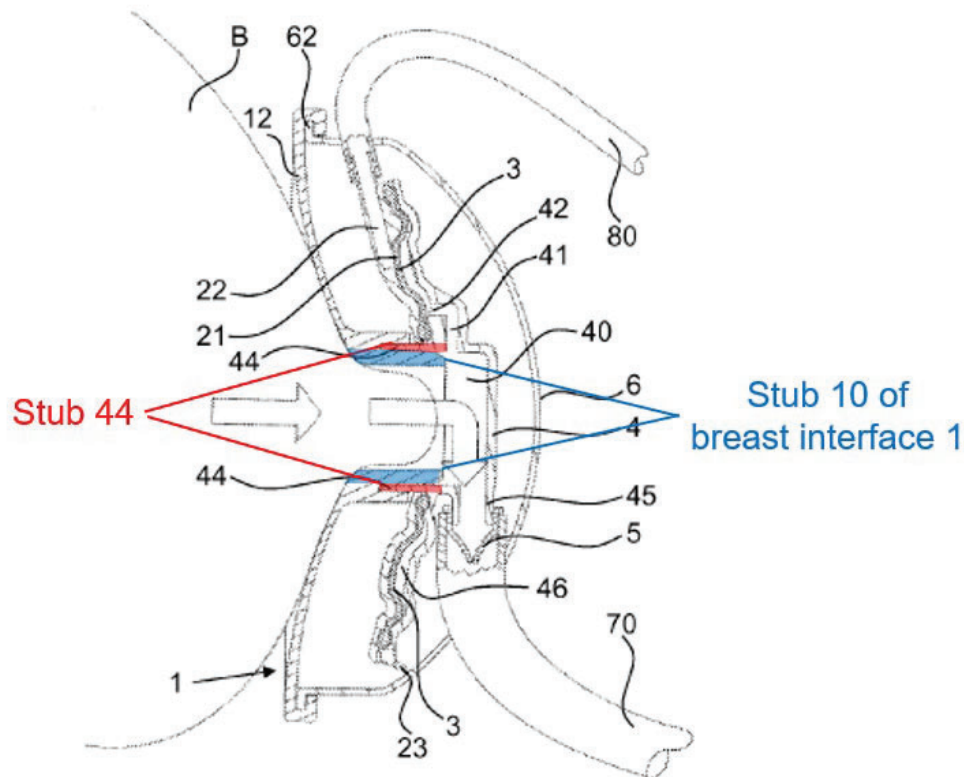
2. **Claim 5: The breast pump device of claim 1, wherein the breast shield is configured to slide in and out from the pump housing, together with the diaphragm that prevents milk from reaching the pump.**

Khalil discloses this limitation. *See Bauer*, ¶¶206-208. Khalil discloses that breast interface 1 (“breast shield”) has a stub 10 with an “annular receiving groove” for passing through a membrane 3 (“diaphragm”) and its two housing parts 2, 4 when connecting to shell 6’, as shown in annotated Figure 11 below. *Khalil*, ¶¶49, 55, 59.



**FIG. 11**

The receiving stub 44 of membrane housing 4 is pushed over stub 10 as shown in annotated Figure 5 below. *Id.*, ¶¶29, 55, 59.

**FIG. 5**

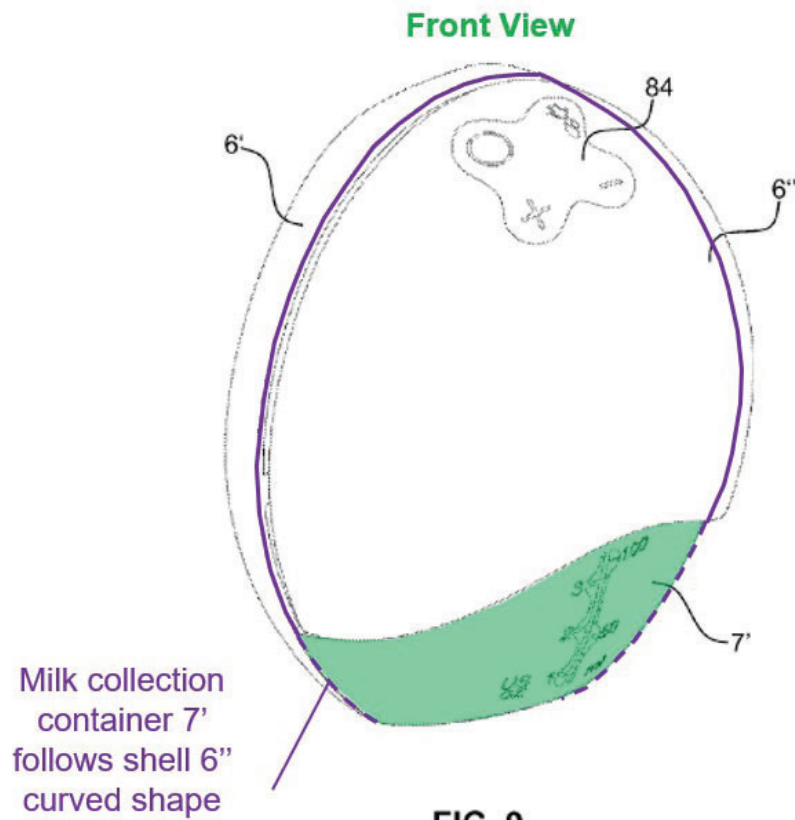
A POSITA would have understood that Khalil's two circular, connected stubs 10 (of breast interface 1) and 44 push together to hold the 3-piece membrane component together and seal for proper pressure and vacuum operation, but may be pulled apart for cleaning so that breast interface 1 ("breast shield") and membrane 3 ("diaphragm") could slide in and out from the pump housing. *See, e.g., id.*, Fig. 5, ¶70; *Bauer*, ¶207.

As discussed above at pages 72-74, a POSITA would have been motivated to use aspects of the diaphragm pump of Khalil in the breast pump of Chang. In such a combination, as described above, the breast shield is configured to slide in and out

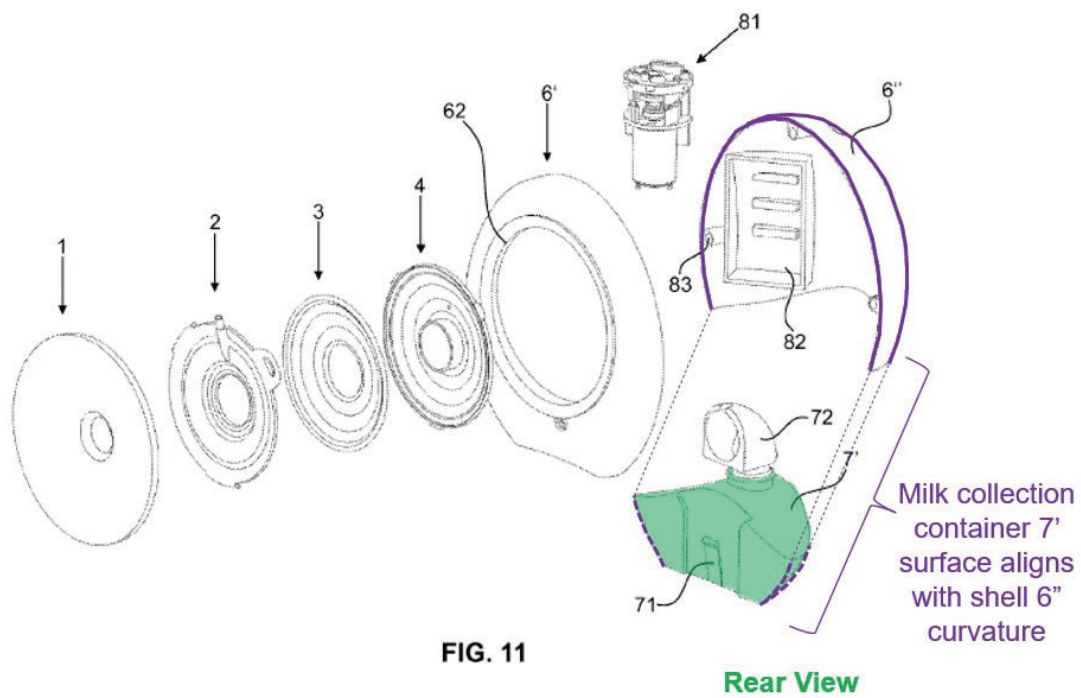
from the pump housing, together with the diaphragm that prevents milk from reaching the pump. *See Bauer*, ¶206-208.

**3. Claims 10, 36: The breast pump device of claim [1/29], wherein the milk container has a surface shaped to continue a curved shape of the [pump housing/housing] so that the breast pump device can be held comfortably inside a bra.**

Khalil discloses these limitations. *See Bauer*, ¶209-210. Khalil discloses a breast shield unit (or breast pump) “designed as a *hands-free unit and worn under a bra*” and including a “milk collection container...*integrated in the housing of the unit* or...coupled directly thereto.” *Khalil*, ¶32, 70. To achieve such design goal, the milk container (green) is in a curved shape that continues the curved shape of the pump housing, as shown in annotated Figures 9 and 11 below.



**FIG. 9**

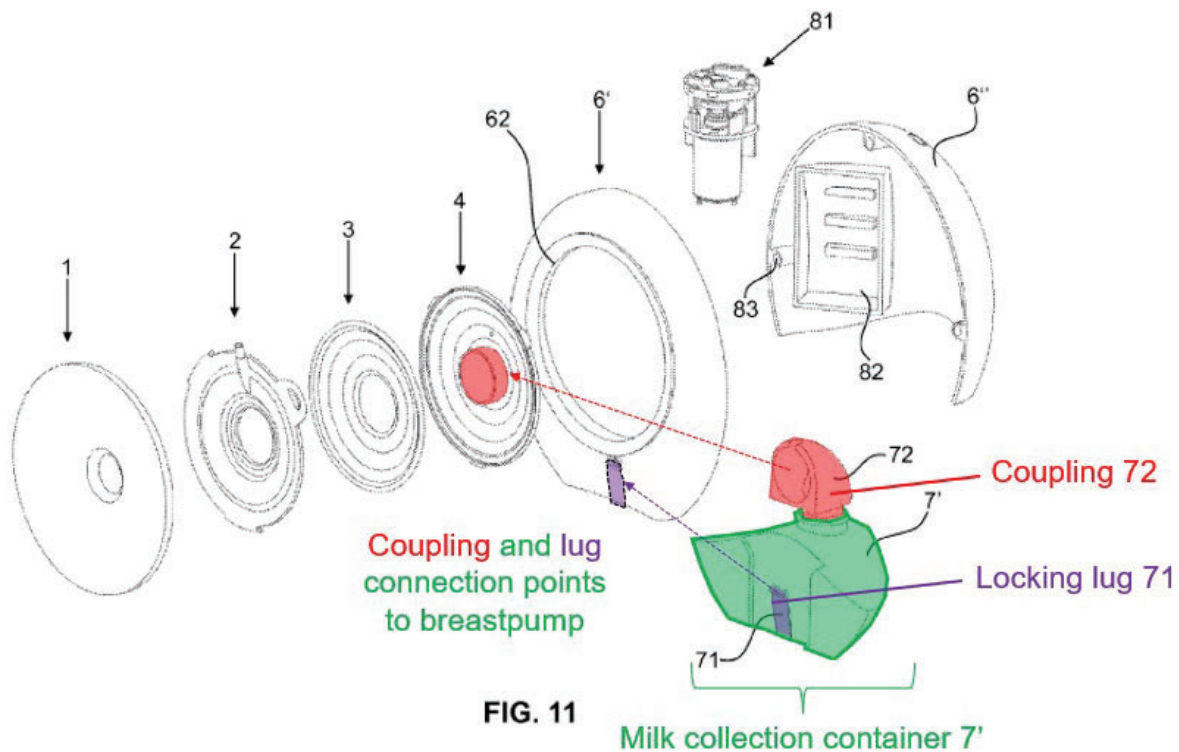


**FIG. 11**

As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang and Khalil to use a rigid milk container that, when connected to the pump housing, has a shape that fits in a bra. *See Bauer*, ¶¶209-210.

- 4. Claims 11, 37: The breast pump device of claim [1/29], wherein the milk container is attachable to the [pump housing/housing] with a mechanical or magnetic mechanism that releasably attaches or latches when the milk container is sufficiently pressed on to the [pump housing/housing] with a single push action.**

Khalil discloses these limitations. *See Bauer*, ¶¶211-212. Annotated Figure 11 below shows that the milk container releasably attaches to the housing (6' and 6'') by a locking lug (71):



Khalil states:



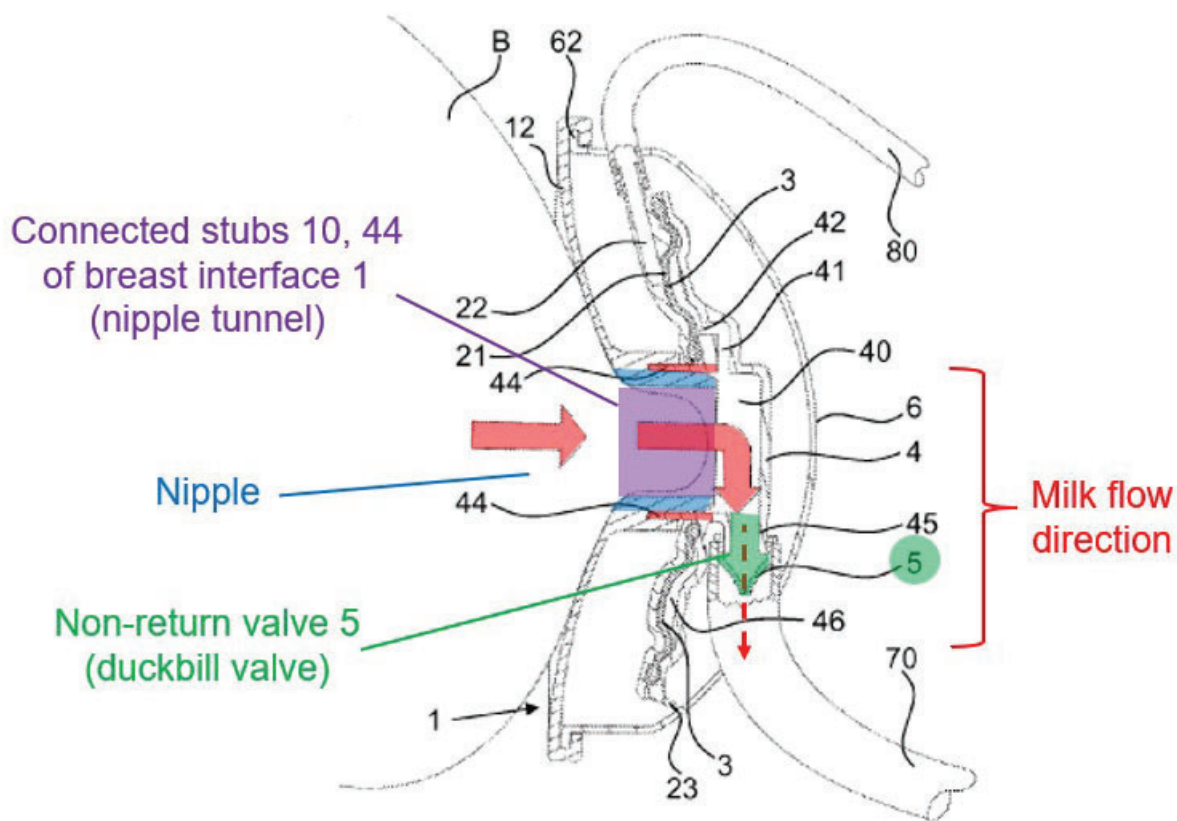
A milk collection container 7' is arranged in the lower area adjoining the cover 6". It is preferably made of plastic like the cover 6". A locking lug 71 is integrally formed on this milk collection container 7' and can engage in a corresponding recess (not shown in the Figures) of the shell ring 6'. In this way, the milk collection container 7' is connected releasably to the shell ring 6'.

*Khalil*, ¶69. Accordingly, Khalil discloses that the milk container is attachable to the pump housing with a mechanical mechanism that releasably attaches when the milk container is sufficiently pressed on to the pump housing with a single push action. *Bauer*, ¶211.

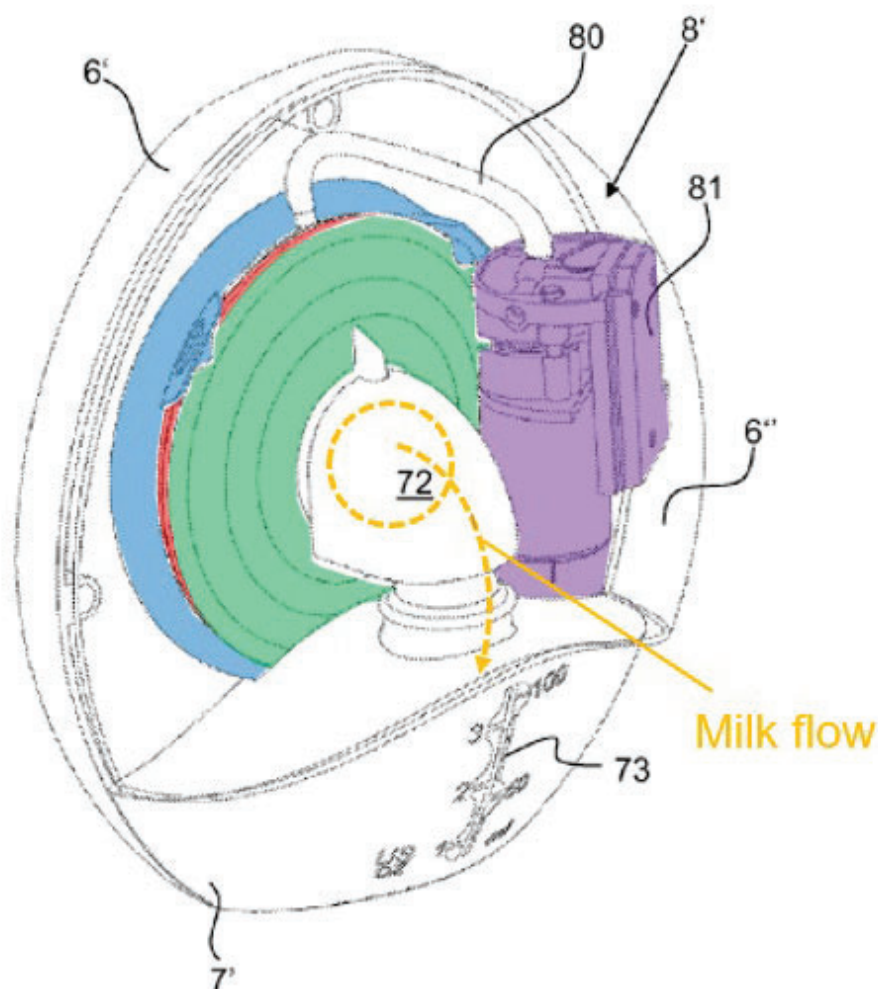
As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang and Khalil to have a breast pump with a rigid milk container located below the pump housing. *See Bauer*, ¶¶211-212.

**5. Claims 12, 38: The breast pump device of claim [1/29], wherein the nipple tunnel includes on a lower surface of the nipple tunnel an opening through which expressed milk flows under gravity into the milk container.**

Khalil discloses these limitations. *See Bauer*, ¶¶213-216. Khalil discloses that expressed milk flows through an opening on the lower surface of the connected stubs 10, 44 ("nipple tunnel") into underpressure chamber 40 and down through non-return valve 5 into milk line 70 as shown in annotated Figure 5 below. *Khalil*, ¶¶61-62.



Khalil's Figure 5 embodiment is incorporated into the Figure 10 in-bra design, in which "milk can flow from the underpressure chamber 40 into the interior of the milk collection container 7" rather than milk line 70 as shown below. *Id.*, ¶¶66, 69.

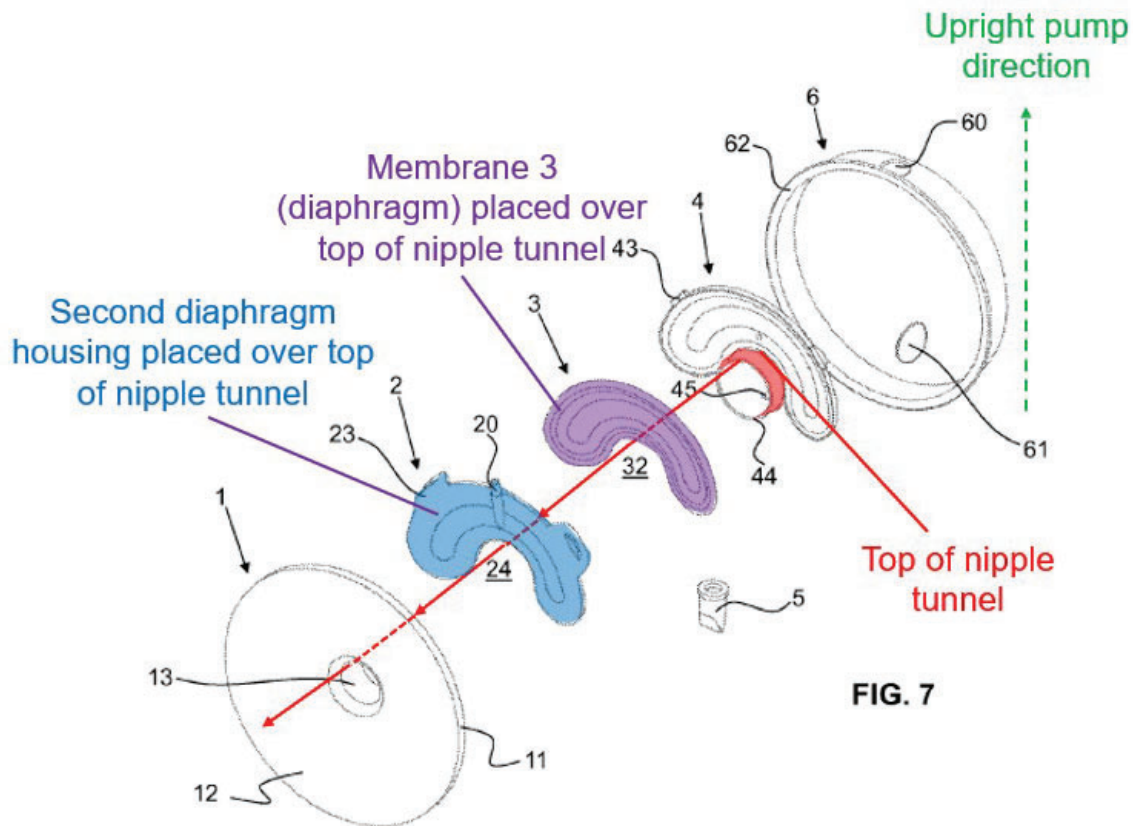
**FIG. 10**

A POSITA would have understood that milk would be expressed by the vacuum pump-generated underpressure applied in the underpressure chamber, but also that the chamber returns to atmospheric or increase pressure subject to normal gravitational pull and directing the milk downward through the non-return valve into the milk collection container 7'. *Id.*, ¶62. *Bauer*, ¶215.

As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang and Khalil to have a breast pump with a rigid milk container located below the pump housing. *See Bauer*, ¶213-216.

**6. Claim 17: The breast pump device of claim 15, wherein the second diaphragm housing is positioned, when the breast pump device is upright, over a top surface of the nipple tunnel.**

Khalil discloses this limitation. *See Bauer*, ¶217-219. Khalil discloses an embodiment where the membrane (“diaphragm”) in the membrane housing part 2 (“second diaphragm housing”) has a “cross section in the shape of a partial circle” that partially encloses the top surface above connected stubs 10, 44 (“nipple tunnel”) shown in annotated Figure 7 below. *Khalil*, ¶65.



A POSITA would have recognized the orientation displayed in Figure 7 as upright because a milk port 61 sits at the bottom of shell 6 to receive non-return valve 5 and facilitate the same pressure- and gravity-based milk flow as described in claim 12. *Khalil*, ¶52-55. *Bauer*, ¶217-218.

As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang's breast pump with aspects of Khalil's diaphragm pump, an embodiment of which has the second diaphragm housing positioned over a top surface of the nipple tunnel. *See Bauer*, ¶217-219.

7. **Claims 25, 43: The breast pump device of claim [1/29], wherein the milk container is configured to be pressed or pushed into engagement with the [pump housing/housing].**

See discussion of claims 11 and 37 above. *See Bauer*, ¶220.

8. **Claims 26, 44: The breast pump device of claim [1/29], wherein the self-contained, in-bra wearable device is configured so that expressed milk flows under gravity through an opening in the nipple tunnel and into the milk container through a duck-bill valve that stays sealed when there is negative air pressure being applied by the pump to ensure that negative air pressure is not applied to the milk container.**

Khalil discloses these limitations. *See Bauer*, ¶221-223. As discussed above for claims 12 and 38, the Chang-Khalil combination teaches that expressed milk flows under gravity through an opening in the nipple tunnel into the milk container. Furthermore, Chang itself discloses that “the milk collection container comprises a one-way valve that permits milk inflow into the milk collection container but prevents milk backflow from the milk collection container to the conduit” (i.e., back to the pump), and the valve can be “a duckbill valve.” *Chang*, ¶21. Khalil similarly discloses that the membrane assembly is bounded by the breast interface 1 and shell 6 as outer walls and includes the membrane 3, membrane housings 2, 4, and duckbill/non-return valve 5 as shown below in annotated Figure 3. *Khalil*, ¶53.

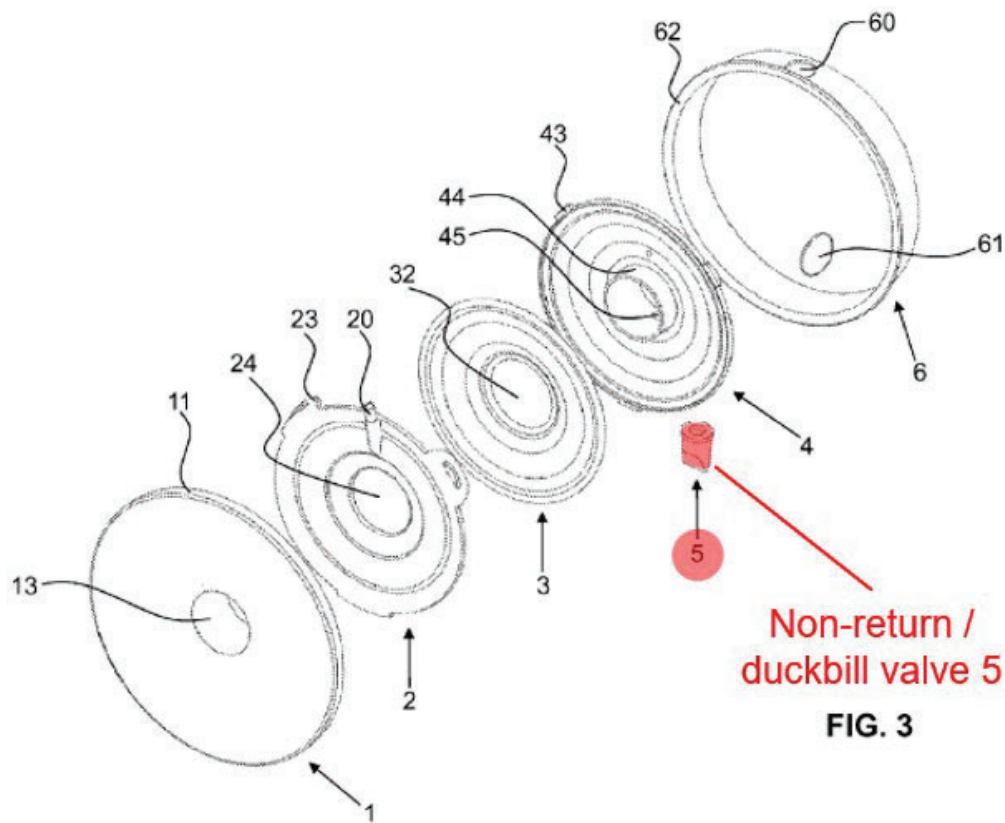


FIG. 3

Duckbill valve 5 is used in Khalil's in-bra embodiment to directly flow milk from underpressure chamber into the interior of milk collection container 7'. *Id.*, ¶69. As shown in Figures 4 and 5 below, during pumping, an overpressure is generated in vacuum chamber 40, which opens duckbill valve 5 to allow milk to flow into the milk container, but an underpressure closes duckbill valve 5 to seal off the milk collection container. *Id.*, ¶58. *Bauer*, ¶221.



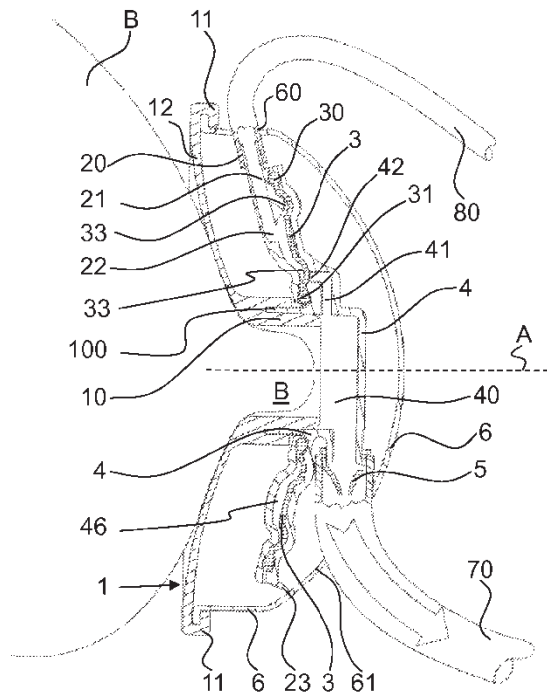


FIG. 4

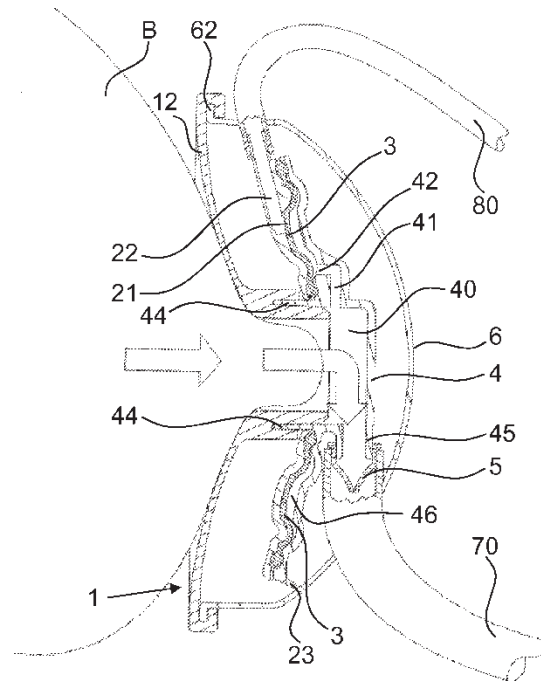


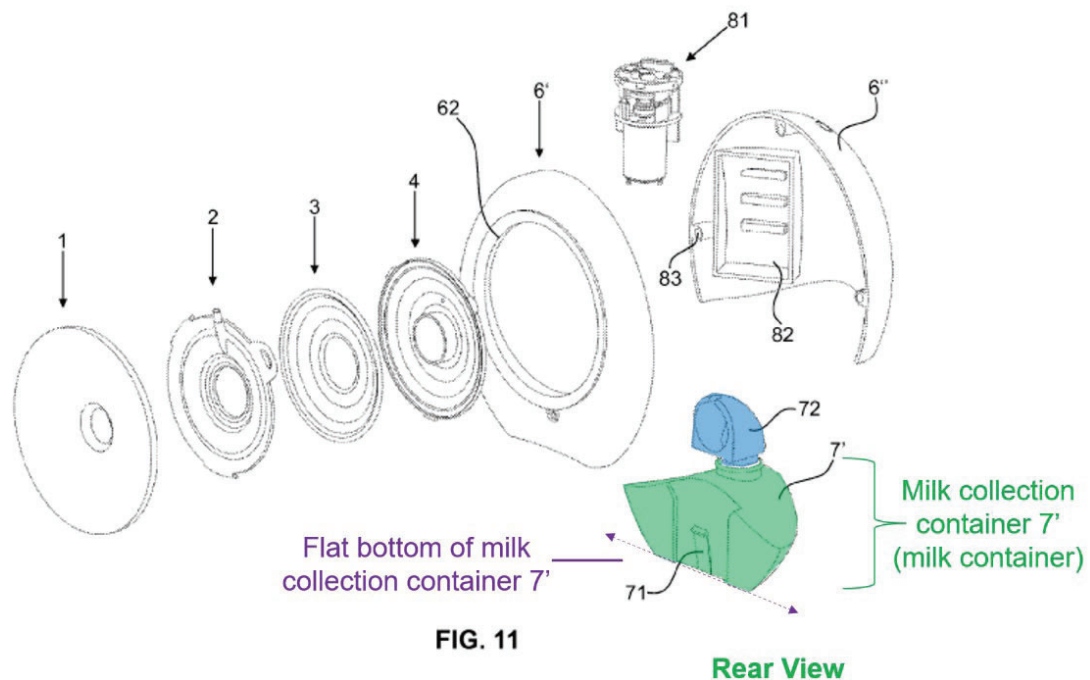
FIG. 5

Khalil's Figure 5 embodiment is incorporated into the Figure 10 in-bra design. *Khalil*, ¶66 ("FIGS. 9 to 11 show another illustrative embodiment in which [various components] correspond to the embodiment according to FIGS. 1 to 5."). *Bauer*, ¶222.

As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang and Khalil to have a breast pump with a rigid milk container located below the pump housing. *See Bauer*, ¶221-223.

9. **Claims 27, 45: The breast pump device of claim [1/29], wherein the milk container comprises a curved surface that includes a flat area that serves as a base for the milk container.**

Khalil discloses these limitations. *See Bauer*, ¶224-225. As described for claims 10 and 36, Khalil's milk container has a curved surface. In addition, as shown in annotated Figure 11 below, Khalil's milk container has a flat base.



As discussed above at pages 72-74, a POSITA would have been motivated to combine Chang and Khalil to have a breast pump with a rigid milk container located below the pump housing. *See Bauer*, ¶224-225.

- 10. Claims 28 And 46: The breast pump device of claim [1/29], wherein the milk container has a curved surface configured to enable the breast pump device to be held comfortably in a bra.**

See discussion of claims 10 and 36 above. *See Bauer*, ¶226.

## **X. CONCLUSION**

*Inter Partes* Review of the challenged claims is respectfully requested.

## **XI. DISCRETIONARY FACTORS FAVOR INSTITUTION**

### **A. Section 314(a)**

The '380 patent is involved in a lawsuit, *Shenzhen Root Technology Co., Ltd. v. Chiaro Technology, Ltd.*, Case No. 2:23-cv-00631 (W.D. Wash.) (“Lawsuit”). Petitioner filed the complaint in the Lawsuit on April 28, 2023, seeking declaratory judgment of noninfringement and invalidity of one of PO’s patents. EX-1016, Dkt.1. Early in the Lawsuit, on July 5, 2023, the court set the trial date for September 2, 2025. *Id.*, Dkt.62. PO subsequently counterclaimed to allege infringement of two patents—the initial patent and the '380 patent challenged here. *Id.*, Dkt.69. Recently, on May 1, 2024, PO amended its complaint to assert two more patents, one of which is not in the same patent family as the previously asserted patents. *Id.*, Dkt.114. In view of PO’s significant expansion of the scope of the Lawsuit, Petitioner plans to file a motion to amend the schedule, with a proposed trial date in the first half of 2026. Petitioner will advise the Board of any changes to the trial date. Because of these facts, Petitioner expects that *Fintiv* will not apply here.

**B. Section 325(d)**

The Board should not exercise its discretion under §325(d) to deny institution. *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8, 17-18 (Dec. 15, 2017) (precedential); *Advanced Bionics, LLC v. MED-EL Elektro-medizinische Geräte GmbH*, IPR2019-01469, Paper 6, 9-11 (Feb. 13, 2020) (precedential). This Petition's grounds rely on four prior art references. Prosecution of parent '057 application is pending; to date, the Examiner has applied Khalil and Chang in rejections, but PO has attempted to distinguish those references for reasons different from how those references are cited and applied herein to any claim limitations of the '380 patent. EX-1003, 2427-33, 2164-2219, 2094-2106, 1823-66, 1808-19, 1028-68, 959-70, 898-937, 871-82. During prosecution of the grandparent '547 application, the Examiner cited Khalil in rejections, but PO distinguished Khalil for reasons different from how those references are cited and applied herein to any claim limitations of in the '380 patent. EX-1004, 383-410, 362-81, 289-314, 269-85, 219-43, 197-213, 152-59, 128-45, 62-68, 16-20.

**XII. MANDATORY NOTICES****A. Real Party in Interest**

Petitioner identifies itself and the entities listed below as real parties in interest:

U.S. Patent 11,413,380  
IPR2024-00953

Shenzhen Root Technology Co., Ltd., which was also known as Shenzhen Lutejiacheng Network Technology Co., Ltd., which changed its name to Shenzhen Lute Innovation Technology Co., Ltd., in September 2023

Hong Kong Lute Technology Co., Ltd.

Shenzhen Conglin E-Commerce Co., Ltd.

Shenzhen Jinruihang Technology Co, Ltd.

Shenzhen Xitao Network Technology Co., Ltd.

ROOT Technology Ltd.

#### **B. Related Matters**

The '380 patent is involved in the Lawsuit identified above.

#### **C. Notice of Counsel and Service Information**

<b>LEAD COUNSEL</b>	<b>BACK-UP COUNSEL</b>
Gene Lee (Reg. No. 55,369) lee-ptab@perkinscoie.com Perkins Coie LLP 1155 Ave. of the Americas, 22nd floor New York, NY 10036-2711 Telephone: (212) 261-6825	Jessica Kaiser (Reg. No. 58,937) kaiser-ptab@perkinscoie.com Perkins Coie LLP 1900 Sixteenth Street, Suite 1400 Denver, CO 80202-5255 Telephone: (303) 291-2300
Email: Shenzhen-Chiaro-IPR@perkinscoie.com	

U.S. Patent 11,413,380  
IPR2024-00953

Respectfully submitted,

/ Gene Lee /

Gene Lee  
Reg. No. 55,369  
Attorney for Petitioners

Date: May 31, 2024  
PERKINS COIE LLP  
1155 Ave. of the Americas, 22nd floor  
New York, NY 10036

U.S. Patent 11,413,380  
IPR2024-00953

**CERTIFICATE OF WORD COUNT UNDER 37 CFR § 42.24(d)**

Pursuant to 37 C.F.R. §42.24(a), Petitioners hereby certify that portions of the above-captioned Petition for *Inter Partes* Review of U.S. Patent 11,413,380, in accordance with and reliance on the word count provided by the word-processing system used to prepare this Petition, that the number of words in this paper is 13,594. Pursuant to 37 C.F.R. §42.24(a), this word count is in compliance and excludes the table of contents, table of authorities, mandatory notices under §42.8, certificate of service, certificate of word count, appendix of exhibits, and any claim listing. This word count was prepared using Microsoft Word.

Respectfully submitted,

/ Gene Lee /  
Gene Lee  
Reg. No. 55,369  
Attorney for Petitioners

Date: May 31, 2024  
PERKINS COIE LLP  
1155 Ave. of the Americas, 22nd floor  
New York, NY 10036



U.S. Patent 11,413,380  
IPR2024-00953

### **CERTIFICATE OF SERVICE**

The undersigned hereby certifies that true copies of the Petition for *Inter Partes* Review of U.S. Patent No. 11,413,380 and supporting materials (Exhibits and Power of Attorney) were served via overnight delivery on the Patent Owner at the correspondence address of record as listed on PAIR:

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
1101 K Street, NW  
10th Floor  
WASHINGTON, DC 20005

A courtesy copy was also sent via electronic mail to Patent Owner's litigation counsel listed below:

Alex Alfano  
[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)

Nirav Desai  
[ndesai@sternekessler.com](mailto:ndesai@sternekessler.com)

Alexander Covington  
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Mitchell D West  
[west@lowegrahamjones.com](mailto:west@lowegrahamjones.com)

U.S. Patent 11,413,380  
IPR2024-00953

Respectfully submitted,

/ Gene Lee /

Gene Lee  
Reg. No. 55,369  
Attorney for Petitioners

Date: May 31, 2024  
PERKINS COIE LLP  
1155 Ave. of the Americas, 22nd floor  
New York, NY 10036

## **EXHIBIT F**

**Elvie Stride**



**Momcozy V1**



**Momcozy V2**



**Elvie Pump**



**Momcozy Mobile Style (M6)**



**Momcozy Mobile Flow (M9)**

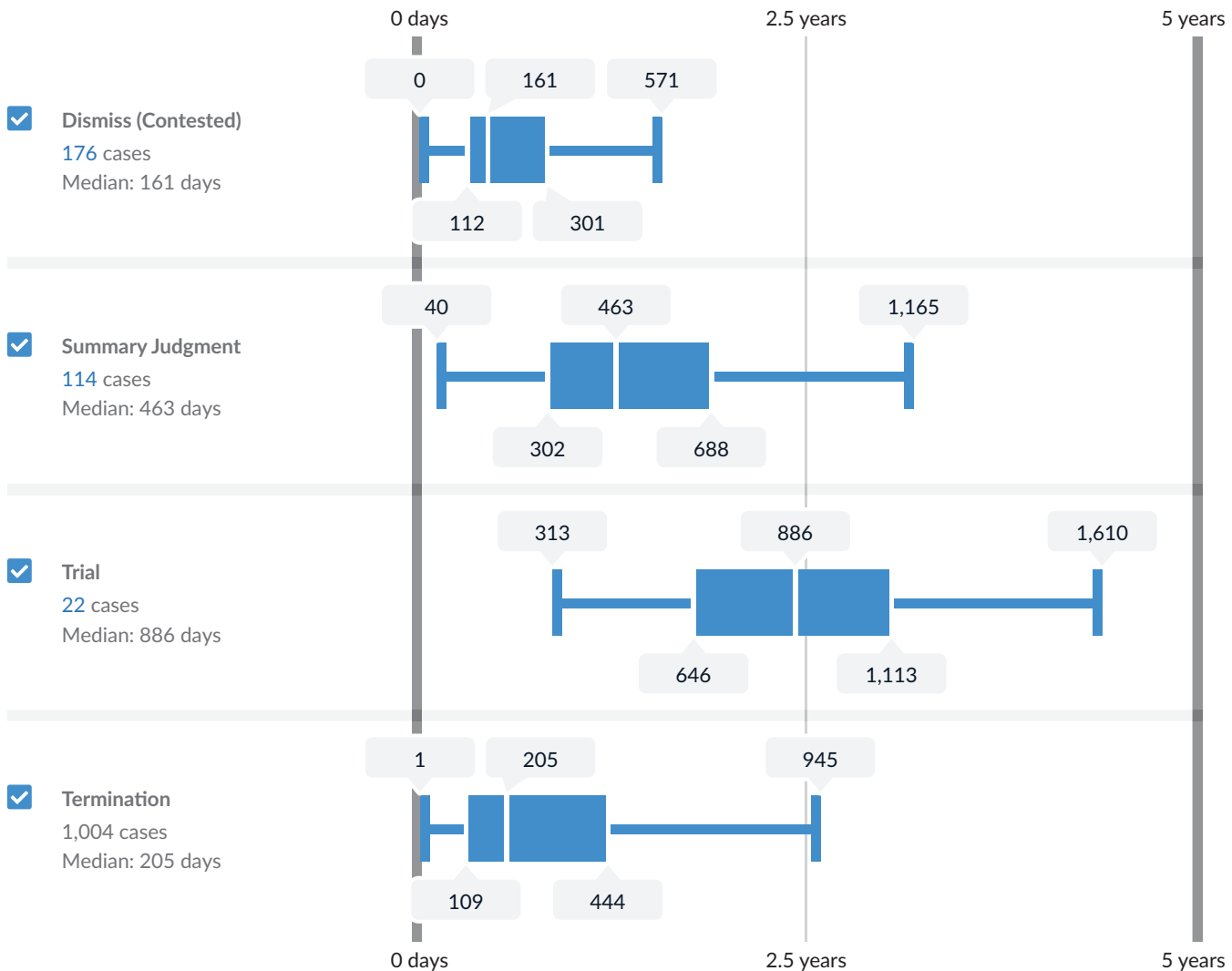


## **EXHIBIT G**

## Federal Court

Showing 1,004 terminated Patent cases; in W.D.Wash.; pending between 2000-01-01 and 2024-06-19.; sorted by most recent docket activity.

### Timing

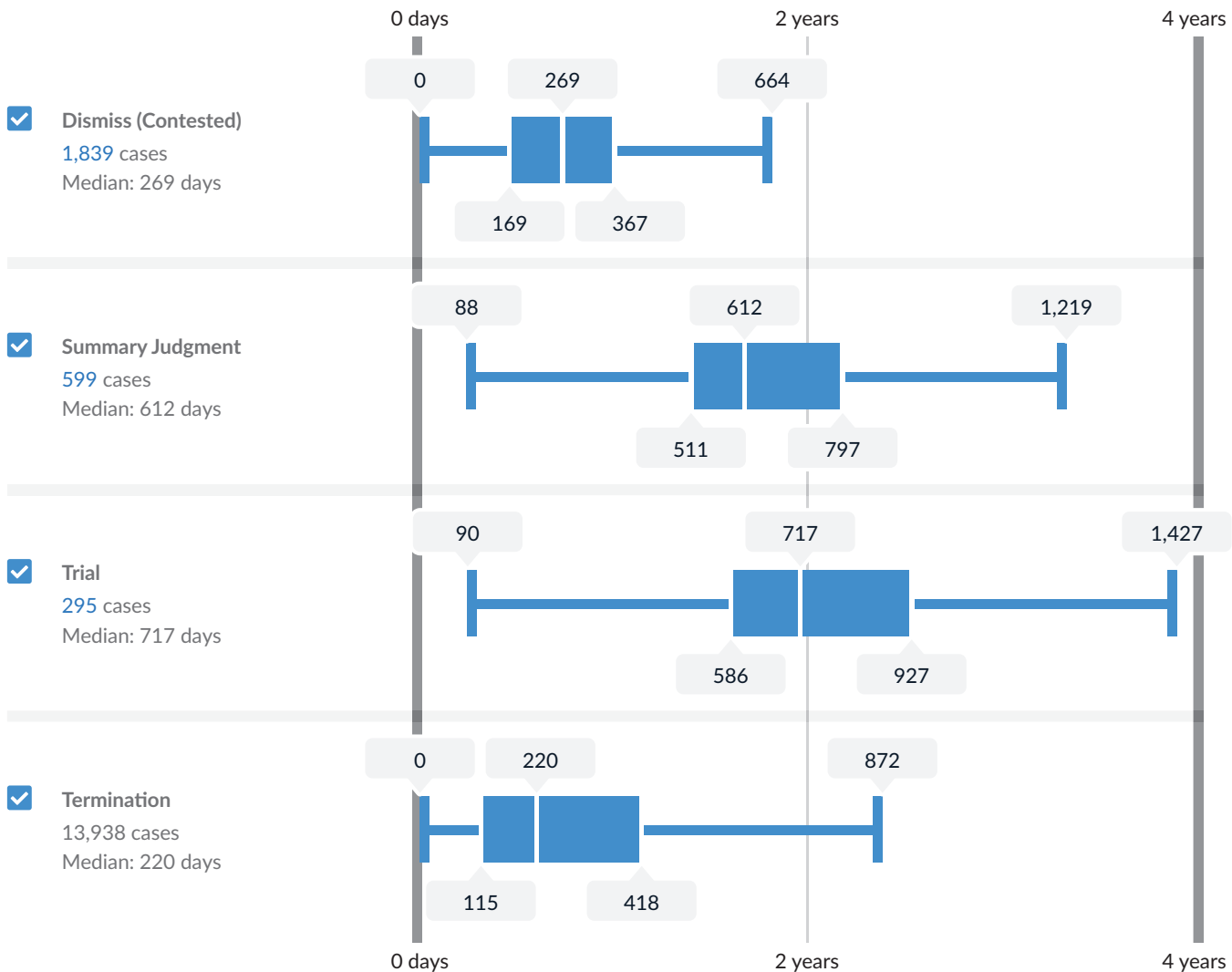


Event	Cases Reaching Event	Median Days from Case Filing to Order
Temporary Restraining Order (Grant)	1	n/a
Temporary Restraining Order (Deny)	2	n/a
Preliminary Injunction (Grant)	10	n/a
Preliminary Injunction (Deny)	19	140
Permanent Injunction (Grant)	65	322
Claim Construction Hearing	103	532

## Federal Court

Showing 13,938 terminated Patent cases; in E.D.Tex.; pending between 2000-01-01 and 2024-06-19.; sorted by most recent docket activity.

### Timing



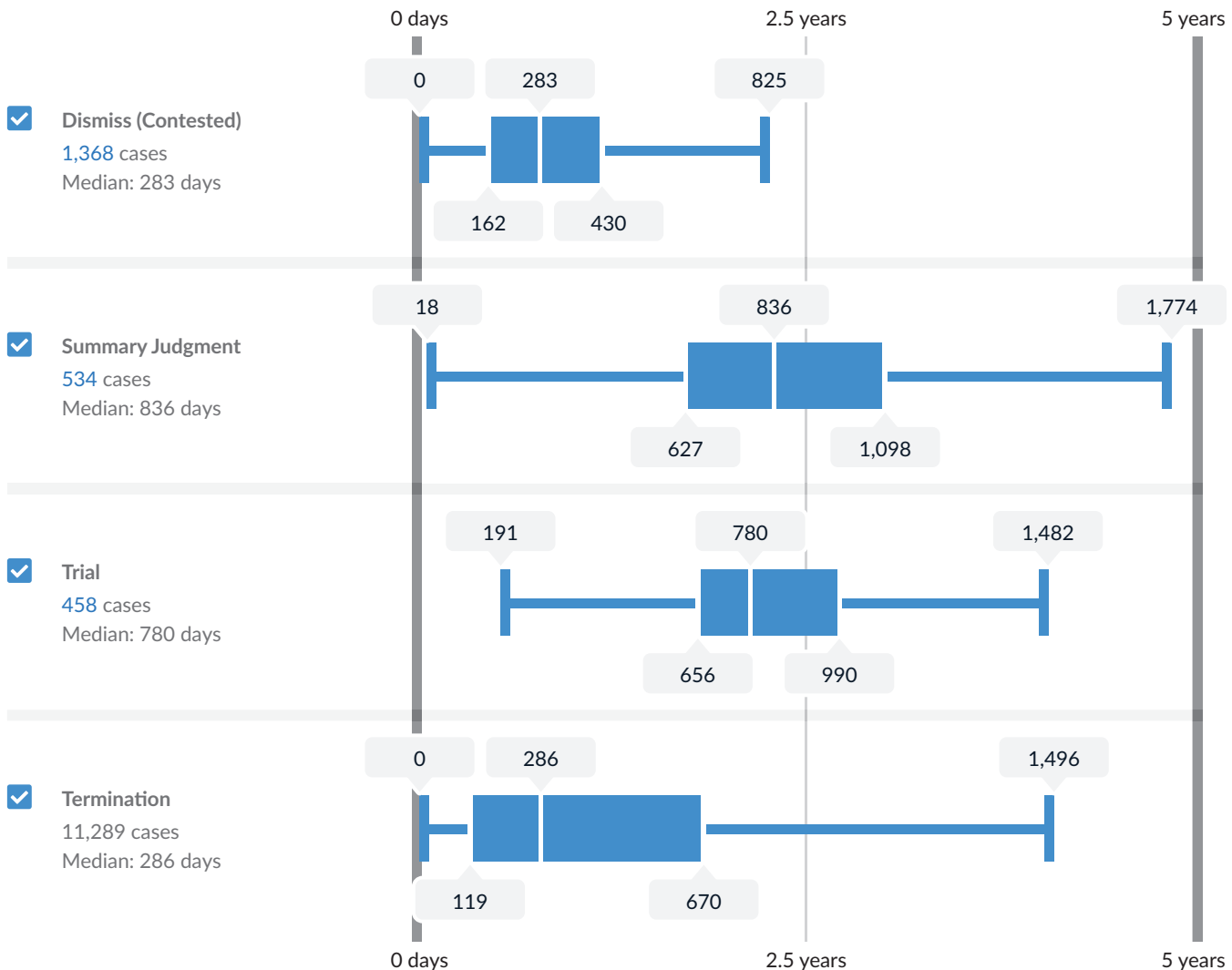
Event	Cases Reaching Event	Median Days from Case Filing to Order
Temporary Restraining Order (Grant)	2	n/a
Temporary Restraining Order (Deny)	7	n/a
Preliminary Injunction (Grant)	16	193
Preliminary Injunction (Deny)	11	215
Permanent Injunction (Grant)	139	364
Permanent Injunction (Deny)	9	n/a
Claim Construction Hearing	1,298	426



## Federal Court

Showing 11,289 terminated Patent cases; in D.Del. (not in E.D.Tex.); pending between 2000-01-01 and 2024-06-19.; sorted by most recent docket activity.

### Timing



Event	Cases Reaching Event	Median Days from Case Filing to Order
Temporary Restraining Order (Grant)	5	n/a
Temporary Restraining Order (Deny)	8	n/a
Preliminary Injunction (Grant)	20	405
Preliminary Injunction (Deny)	62	247
Permanent Injunction (Grant)	453	610
Permanent Injunction (Deny)	16	1,295
Claim Construction Hearing	1,306	509

## **EXHIBIT H**

Scheduled Events	Current Schedule	Current Momcozy Proposal	Elvie Proposal
Preliminary infringement contentions and disclosure of asserted claims	6/10/2024	8/1/2024	Served
Disclosure of preliminary non-infringement and invalidity contentions	7/1/2024	9/5/2024	7/15/2024
Exchange of Proposed Terms and Claim Elements for Construction	N/A	9/26/2024	7/29/2024
Exchange of Preliminary Claim Constructions and Extrinsic Evidence	9/9/2024	10/25/2024	8/12/2024
Joint claim construction and Prehearing Statement	10/3/2024	12/11/2024	9/20/2024
Opening expert disclosures for claim construction	7/29/2024	12/11/2024	9/20/2024
Rebuttal expert disclosures for claim construction	8/23/2024	1/10/2025	10/4/2024
Completion of claim construction discovery	N/A	2/6/2025	10/18/2024
Opening claim construction briefs	10/28/2024	2/13/2025	11/1/2024
Responsive claim construction briefs	11/12/2024	2/28/2025	11/15/2024
Claim construction hearing	12/16/2024	To be set by Court	12/16/2024
Expert Reports	2/3/2025	N/A	2/3/2025
Discovery Motion Cutoff	2/20/2025	N/A	2/20/2025
Rebuttal Expert Reports	3/3/2025	N/A	3/3/2025
Close of Fact Discovery	3/24/2025	N/A	4/11/2025
Daubert Motions	4/30/2025	N/A	4/30/2025
Settlement Conference	6/2/2025	N/A	6/2/2025
Motions in Limine	8/4/2025	N/A	8/4/2025
Pretrial Order	8/15/2025	N/A	8/15/2025
Pretrial Conference	8/18/2025	N/A	8/18/2025
Trial Briefs	8/26/2025	N/A	8/26/2025
Trial	9/2/2025	To be set by Court	9/2/2025

## **EXHIBIT I**

**From:** [Josephine Kim](#)  
**To:** [YANG Qianwu](#)  
**Cc:** [Alex Alfano](#); [SHM Momcozy](#); [chen@shm.law](#); [ELVIE-MOMCOZY-DJ](#); [Walters@lowegrahamjones.com](#)  
**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims  
**Date:** Friday, March 1, 2024 10:08:58 AM

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Wu,

You have been counsel for Momcozy for the entire duration of the case, even though your local counsel has changed four times, so your effort to distance yourself from prior joint submissions because “Momcozy is changing counsels” is meritless.

We will not further delay filing this motion for leave. We will be filing today, as I mentioned earlier this week, and now we have Momcozy’s position. I am available during the remainder of the business day today, Friday, if you want to have a final conversation. You can reach me at 202-772-8896.

Thanks,

Josephine

On Mar 1, 2024, at 9:38 AM, YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)> wrote:

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Momcozy will not oppose Elvie's motion to add two patents and one new party if Elvie will agree with Momcozy on an extended, proposed schedule to accommodate the significantly enlarged scope of the case. If, however, Elvie will not agree to such an extended, proposed schedule, Momcozy will oppose Elvie’s motion because litigating the case with the enlarged scope as proposed by Elvie would substantially prejudice Momcozy.

Elvie's prior vague statement about asserting additional Elvie patents in the case was not meaningful—for example, the two new patents were not even granted then.

Furthermore, as you are already aware, Momcozy is changing counsels.

Please let me know your availability to meet and confer about Elvie’s motion.

Best regards,

Wu

On Feb 29, 2024, at 12:05, Josephine Kim  
<JOSKIM@sternekessler.com> wrote:

Wu,

Elvie strongly opposes extending the case schedule by a full year and will not consent to this request. This is a drastic increase that is not warranted by the patents and claims at issue. The Court was aware of the additional parties and patents to be added to the case when it issued the current schedule. You will recall that on June 28, 2023, the parties filed a Joint Status Report and notified the Court that “[w]ith Elvie’s forthcoming answer and counterclaims...*Elvie intends to allege that Plaintiffs (and other “Momcozy” entities) infringe additional Elvie patents...*” See D.I. 61 at 1-2 (emphasis added). Within a week the Court issued the current schedule with a September 2, 2025 jury trial date, which was even later than the August 17, 2025 “Trial Readiness Date” offered by the parties.

Elvie also intends to notify the Court that the standard practice in patent litigation is for the parties to work together as the case progresses to narrow the issues for trial, with Elvie narrowing its asserted claims and Momcozy narrowing its invalidity assertions. It is not appropriate to jump to extending the trial date by a year due to the addition of patents and parties, especially when Momcozy has made no effort on its end to move discovery along. Momcozy has extended out the WeChat ESI dispute for months by rehashing the same issues over and over. Momcozy also served deficient responses to Elvie’s document requests more than *three* months ago and has not responded to our deficiency letters and email requests on the issue. Moreover, we intend to address the TPH issue in due course and do not anticipate it impacting the case schedule.

Nevertheless, we do see that there are some minor scheduling adjustments to address where the Local Patent Rules conflict with the Scheduling Order. We propose the modifications in red below so that the order of events makes sense. We further believe that it is appropriate to pick up the pace of some fact discovery events as shown below given that currently the preliminary infringement contentions are due almost a year after the filing of the Complaint.

Source	Event	Current Schedule	Proposed Schedule
Scheduling Order	Preliminary Infringement Contentions	Jun. 10	<b>Apr. 1</b>

Scheduling Order	Preliminary Invalidity Contentions	Jul. 1	<b>Apr. 22</b>
Local Patent Rule 130 (within 20 days of contentions)	Disclose Claim Terms for Construction	Jul. 22	<b>May 13</b>
Scheduling Order	Expert Reports on Claim Construction	Jul. 29	Jul. 29
Local Patent Rule 131 (within 30 days after disclosing proposed terms)	Disclose Proposed Constructions for Claim Terms	Aug. 21	<b>Jun. 12</b>
Scheduling Order	Rebuttal Expert Reports on Claim Construction	Aug. 23	Aug. 23
Scheduling Order	Preliminary Claim Chart	Sept. 9	Sept. 9
Scheduling Order	Joint Claim Chart and Prehearing Statement	Oct. 3	Oct. 3
Scheduling Order	Opening Claim Construction Briefs	Oct. 28	Oct. 28
Scheduling Order	Responsive Claim Construction Briefs	Nov. 12	Nov. 12
Scheduling Order	<i>Markman</i> Hearing	Dec. 16	Dec. 16

In view of Elvie's position on the schedule, please let us know by **Noon ET on Friday, March 1** of Momcozy's position on Elvie's Motion for Leave to file Amended Counterclaims as we intend to file our papers this week.

Regards,  
Josephine

<image001.png>

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

**Direct:** 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Sunday, February 25, 2024 11:25 PM

**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>; SHM Momcozy <[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law); ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>; [walters@lowegrahamjones.com](mailto:walters@lowegrahamjones.com)

**Subject:** Re: Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology



Ltd. // Amended Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking links or attachments.

Hi Josephine,

Regarding the enlargement of the case schedule, we believe it is only reasonable to extend the trial date from the current September 2, 2025, to September 2, 2026 or later to reflect the enlargement of the case accordingly, because Elvie will have added 3 more patents, joined 4 more parties, and added 1 more claim to this case after the schedule was established. Moreover, it may take Elvie more than 6 months to complete the service to TPH under the Hague Service Convention.

Please let us know your position regarding this 12-month extension of the trial date.

If Elvie does not consent to the extension of the schedule as requested by Momcozy, Momcozy intends to file a motion to modify the schedule. We would also like to request a meet and confer to discuss our planned motion.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM LAW FIRM

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T: +86 755 8326 6693

Shenzhen Office  
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2666 Keyuan South Road, Nanshan  
Shenzhen, 518052, China

Silicon Valley Office  
3000 El Camino Real, Building 4, Suite 200, Palo Alto,  
California 94306

On Feb 23, 2024, at 21:40, YANG Qianwu  
<[yang@shm.law](mailto:yang@shm.law)> wrote:

Hi Josephine,

We will respond to your email substantively after our client confirms our proposal next Monday. Generally, we believe it would be only reasonable to extend the case schedule by 1 year to reflect the significant enlargement of this case.

We prefer to avoid any unnecessary motions or briefs regarding these procedural matters if feasible.

Best regards,

Wu

YANG Qianwu (杨乾武 律师)  
He/Him/His  
Admitted in California & China  
Founding Managing Partner  
SHM Law Firm

M: +86 139 2521 2009 (WhatsApp) | T: +86 755 8326 6693

25F, China Resources Tower (深圳“春笋”)  
2666 Keyuan South Road, Nanshan  
Shenzhen, 518052, China

3000 El Camino Real, Building 4, Suite 200, (美国硅谷) Palo Alto, California 94306

On 23 Feb 2024, at 09:38, Josephine Kim  
<[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)> wrote:

Wu,

As to the enlarged case schedule, please let us know what Momcozy has in mind so we can consider it with our client. As I have mentioned previously, Elvie is not keen to extend out the trial date, especially given that the parties jointly proposed an August 2025 trial date last summer, but we would like to avoid a dispute and briefing on the schedule if possible.

Note, however, that Elvie would like to get its Motion for Leave on file as soon as possible so

we'd appreciate it if you could send us the proposed schedule this week so we can see if the parties are on the same page. To the extent the case schedule discussions cannot be swiftly resolved, Elvie intends to proceed with filing its Motion for Leave to Amend its Counterclaims, even if not stipulated.

Thanks,  
Josephine

<image001.png>

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

**Direct:** 202.772.8896

---

**From:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>

**Sent:** Wednesday, February 21, 2024 10:32 PM

**To:** Josephine Kim <[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>

**Cc:** Alex Alfano <[aalfano@sternekessler.com](mailto:aalfano@sternekessler.com)>;

SHM Momcozy

<[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>; [chen@shm.law](mailto:chen@shm.law);

ELVIE-MOMCOZY-DJ <[ELVIE-MOMCOZY-](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)

[DJ@sternekessler.com](mailto:DJ@sternekessler.com)>; [Walters@lowegrahamjones.com](mailto:Walters@lowegrahamjones.com)

**Subject:** Re: Shenzhen Root Technology Co., Ltd.,  
et al. v. Chiaro Technology Ltd. // Amended  
Counterclaims

**EXTERNAL EMAIL:** Use caution before clicking  
links or attachments.

Hi Josephine,

Could we stipulate according to the following principles:

1. Momcozy agrees to Elvie's amendment of the complaint to include the two asserted patents and the additional party.
2. Both parties agree to a substantively enlarged proposed schedule to accommodate a significant increase (at least fourfold in terms of the number of patents, in addition to the joinder of four more parties and the inclusion of at least one additional claim) in the scope of

the case.

If this is agreeable to your team, we can proceed to flesh out the proposed enlarged schedule as soon as practical.

Best regards,

Wu

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On Feb 22, 2024, at 04:14,  
Josephine Kim  
<[JOSKIM@sternekessler.com](mailto:JOSKIM@sternekessler.com)>  
wrote:

Hi Wu,

On Elvie's proposal for a stipulated motion for leave to file the amended counterclaims mentioned in Alex's email below, we would appreciate your prompt response in view of the parties' recent discussions that this amendment would be forthcoming and in view of the March deadline to amend pleadings.

Thanks,  
Josephine

<image002.png>

**Josephine Kim**

Director

**Sterne, Kessler, Goldstein & Fox**  
**P.L.L.C.**

**Email:** [joskim@sternekessler.com](mailto:joskim@sternekessler.com)

**Direct:** 202.772.8896

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**From:** Alex Alfano

[<aalfano@sternekessler.com>](mailto:aalfano@sternekessler.com)

**Sent:** Tuesday, February 20, 2024

9:49 PM

**To:** YANG Qianwu <[yang@shm.law](mailto:yang@shm.law)>;

SHM Momcozy

<[shmmomcozy@shm.law](mailto:shmmomcozy@shm.law)>;[chen@shm.law](mailto:chen@shm.law)

**Cc:** ELVIE-MOMCOZY-DJ <[ELVIE-](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)

[MOMCOZY-](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)

[DJ@sternekessler.com](mailto:ELVIE-MOMCOZY-DJ@sternekessler.com)>;[walters@lowegrahamjones.com](mailto:walters@lowegrahamjones.com)

**Subject:** Shenzhen Root Technology Co., Ltd., et al. v. Chiaro Technology Ltd. // Amended Counterclaims

Counsel,

Elvie intends to file its Amended Counterclaims asserting U.S. Patent Nos. 11,813,381 and 11,806,454 and naming Shenzhen Xitao Network Co., Ltd. this week. Given that Elvie intends to file its Amended Counterclaims prior to the deadline for amending pleadings (see D.I. 62), please let us know if Plaintiffs would

be willing to stipulate to Elvie's leave  
to file the Amended Counterclaims.  
Otherwise, please let us know your  
position on Elvie's Motion for Leave  
to File Amended Counterclaims.

Best,  
Alex

<image003.png>

**Alex Alfano**

Associate

**Sterne, Kessler, Goldstein & Fox P.L.L.C.**

1101 K Street, NW, 10<sup>th</sup> Floor

Washington, DC 20005

<image002.png>

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